

***PRELIMINARY DRAFT
FOR DISCUSSION PURPOSES ONLY***

**DISCUSSION OUTLINE
MATERIALS**

Prepared for
Department of Aviation

Prepared by:
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February 19, 2002

AGENDA

- I. WIND COVERAGE
- II. DESIGN DAY SCHEDULE
- III. AIRFIELD LAYOUT OPTIONS
- IV. OPERATING CONFIGURATIONS

I. WIND COVERAGE

1. The modernization concept for O'Hare proposes the closure of Runways in the 14-32 and 18-36 direction, thus limiting the available runway directions to 9-27 and 4-22. In order to assess the implications of this decision, wind data for O'Hare International Airport was analyzed to ascertain the percentage of wind coverage provided under the proposed concept. Additionally, coverages provided under the proposed configuration were compared to those provided under a configuration of Runways in the 9-27 and 14-32 directions.
2. FAA Advisory Circular 150/5300-13, "Airport Design", establishes recommendations for runway wind coverages and for allowable crosswind components for the various aircraft categories. Generally, larger aircraft with higher approach speeds are capable of operating in higher crosswind conditions. The majority of aircraft at the Airport (including narrow body aircraft and larger) have allowable crosswind components of 16 knots or greater based on FAA criteria. It is important to recognize that crosswind criteria discussed here is based exclusively on FAA guidelines. This criteria may not reflect individual airline operating practices or pilot preferences, which will need to be addressed. Additionally, operating practices typically specify different allowable crosswind components for dry pavement conditions and wet pavement conditions.
3. Wind analyses were conducted by Ricondo & Associates for the last ten-year period. Wind data covering the period 1991 through 2000 was analyzed to assess the coverages under various allowable crosswind components and weather conditions. Wind coverages were analyzed for both a 24-hour day, and separately for the hours between 6:00 a.m. and 10:00 p.m. in order to reflect the Airport's primary operating hours.
4. **Table I-1** presents wind coverages for the combined Runway 4-22 and Runway 9-27 configurations, and the combined Runway 14-32 and Runway 9-27 configurations for both the 24-hour day and primary operating hours (6:00 a.m. to 10:00 p.m.). As shown, under all crosswind conditions Runway 9-27 coupled with Runway 4-22 provides better coverage than Runway 9-27 coupled with Runway 14-32. Additionally, the analysis of primary operating hours provides the more conservative assessment of wind coverages under all conditions. As such, the remainder of this section focuses on the analysis of the wind coverage during the primary operating hours.
5. **Exhibits I-1** through **I-4** and **Table I-2** present the wind coverage provided by Runway 9-27 and the additional coverage provided by Runway 4-22 under the various weather and allowable crosswind conditions. Given that the primary operating configuration of the O'Hare runway concept, (i.e., the configuration with the most capacity), will be in the east-west direction, it is important to consider the ability of the facility to operate solely in this direction based on wind conditions. As shown in Table F2, Runway 9-27 provides 98.1 percent coverage of all weather conditions with an allowable crosswind of 16 knots, and

**TABLE I-1
Runway Coverages
RW 9-27 & RW 4-22
RW 9-27 & RW 14-32**

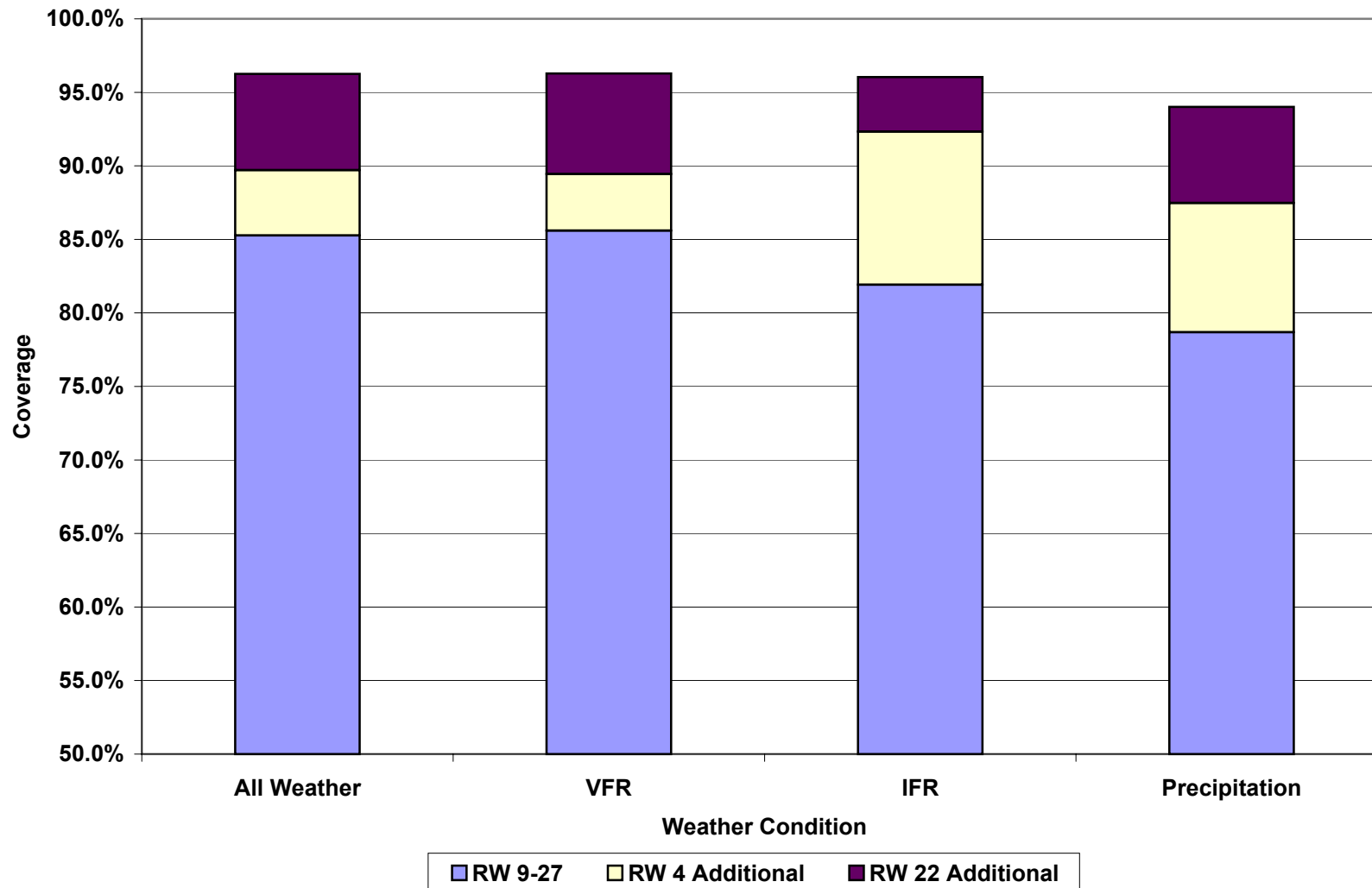
Daytime Operating Hours 06:00 - 22:00

10.5-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32	16-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32
	<u>Occurrences</u>				<u>Occurrences</u>		
All Weather	58,365	96.3%	92.6%	All Weather	58,365	99.8%	99.2%
VFR	53,034	96.3%	92.9%	VFR	53,034	99.8%	99.3%
IFR	5,331	96.0%	89.7%	IFR	5,331	99.6%	98.4%
Precipitation	4,224	94.0%	88.8%	Precipitation	4,224	99.6%	98.3%
13-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32	20-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32
	<u>Occurrences</u>				<u>Occurrences</u>		
All Weather	58,365	98.9%	97.2%	All Weather	58,365	100.0%	99.9%
VFR	53,034	98.9%	97.3%	VFR	53,034	100.0%	100.0%
IFR	5,331	98.7%	95.4%	IFR	5,331	100.0%	99.9%
Precipitation	4,224	98.3%	95.2%	Precipitation	4,224	100.0%	99.9%

All Hours 00:00 - 24:00

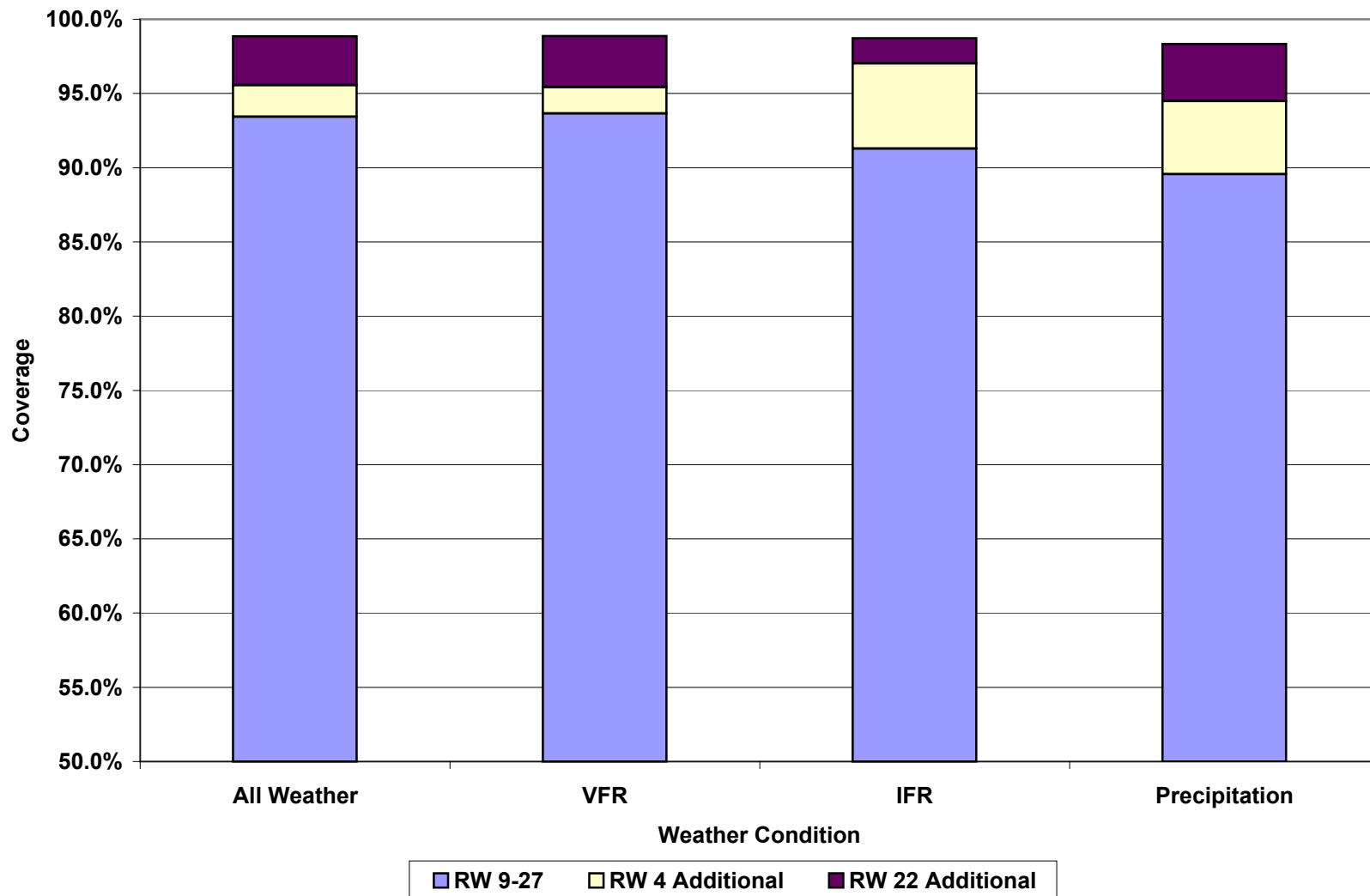
10.5-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32	16-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32
	<u>Occurrences</u>				<u>Occurrences</u>		
All Weather	87,543	96.7%	93.5%	All Weather	87,543	99.8%	99.3%
VFR	79,442	96.7%	93.8%	VFR	79,442	99.8%	99.4%
IFR	8,101	96.3%	90.4%	IFR	8,101	99.7%	98.7%
Precipitation	6,534	94.0%	89.0%	Precipitation	6,534	99.6%	98.5%
13-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32	20-knot Crosswind		RW 9-27 & RW 4-22	RW 9-27 & RW 14-32
	<u>Occurrences</u>				<u>Occurrences</u>		
All Weather	87,543	99.0%	97.6%	All Weather	87,543	100.0%	100.0%
VFR	79,442	99.0%	97.7%	VFR	79,442	100.0%	100.0%
IFR	8,101	98.8%	95.7%	IFR	8,101	100.0%	99.9%
Precipitation	6,534	98.3%	95.2%	Precipitation	6,534	100.0%	99.9%

**EXHIBIT I-1
Wind Coverage - 10.5-knot Crosswind
9-27 and 4-22**



Wind Data for 1991 through 2000, 06:00 - 22:00
Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina
Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-2
Wind Coverage - 13-knot Crosswind
9-27 and 4-22**

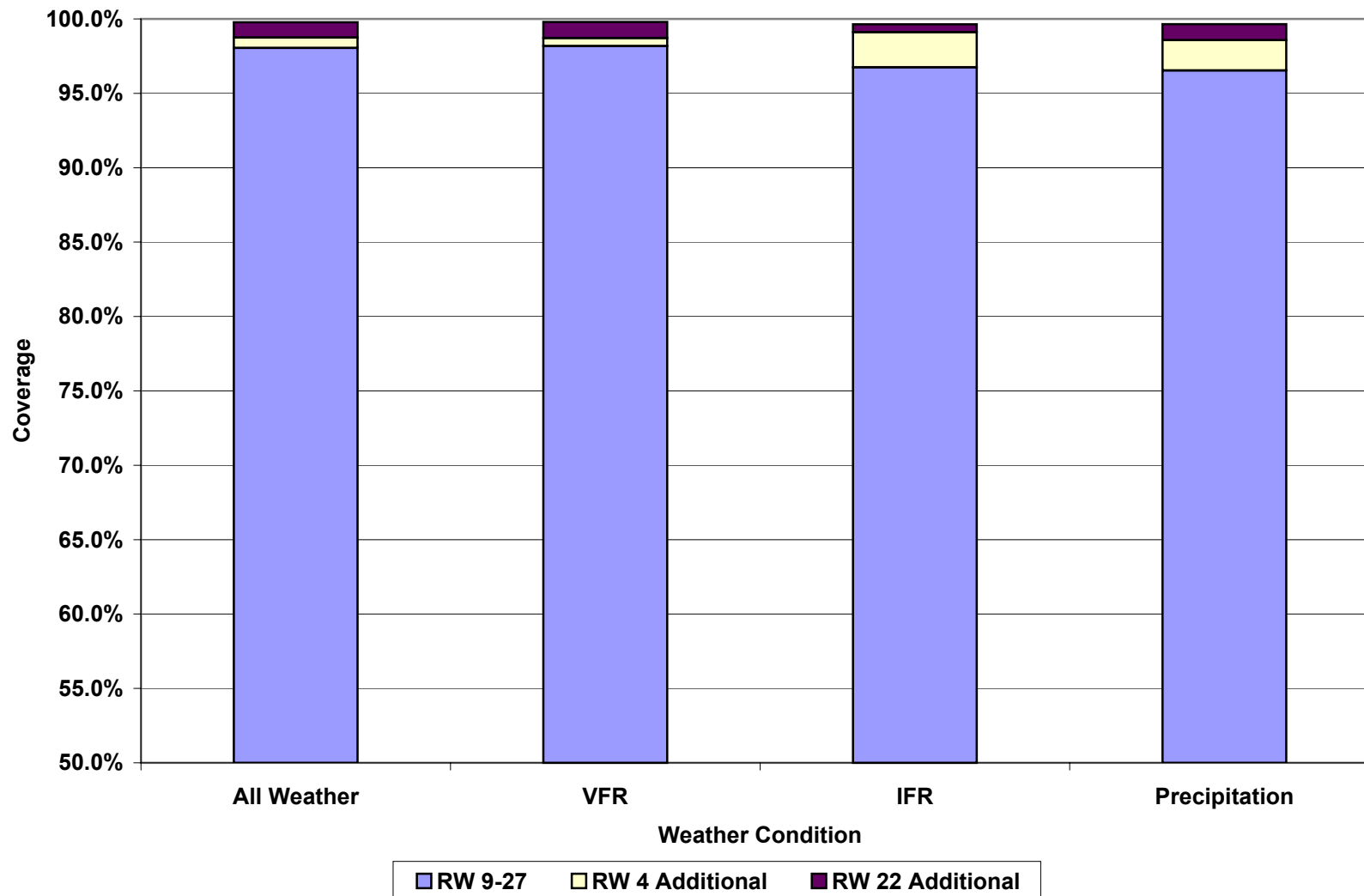


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-3
Wind Coverage - 16-knot Crosswind
9-27 and 4-22**

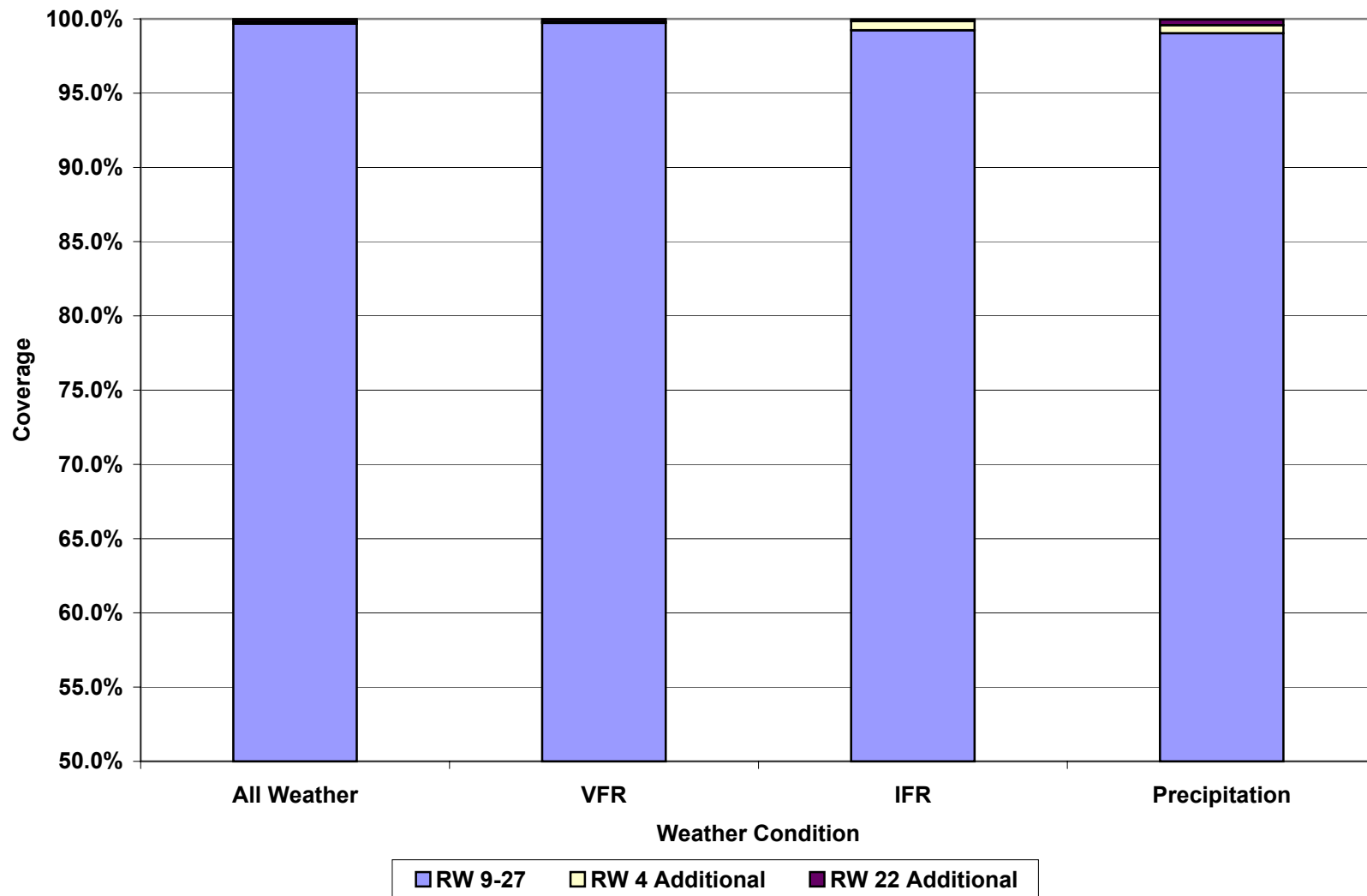


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-4
Wind Coverage - 20-knot Crosswind
9-27 and 4-22**



Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**TABLE I-2
Additional Coverage Provided
by RW 4-22**

10.5-knot Crosswind

	<u>Occurrences</u>	<u>RW 9-27</u>	<u>ADDITIONAL</u>		<u>TOTAL</u>
			<u>RW 4</u>	<u>RW 22</u>	
All Weather	58,365	85.3%	4.4%	6.5%	96.3%
VFR	53,034	85.6%	3.8%	6.8%	96.3%
IFR	5,331	81.9%	10.4%	3.7%	96.0%
Precipitation	4,224	78.7%	8.8%	6.5%	94.0%

16-knot Crosswind

	<u>Occurrences</u>	<u>RW 9-27</u>	<u>ADDITIONAL</u>		<u>TOTAL</u>
			<u>RW 4</u>	<u>RW 22</u>	
All Weather	58,365	98.1%	0.7%	1.0%	99.8%
VFR	53,034	98.2%	0.5%	1.1%	99.8%
IFR	5,331	96.8%	2.4%	0.5%	99.6%
Precipitation	4,224	96.5%	2.0%	1.1%	99.6%

13-knot Crosswind

	<u>Occurrences</u>	<u>RW 9-27</u>	<u>ADDITIONAL</u>		<u>TOTAL</u>
			<u>RW 4</u>	<u>RW 22</u>	
All Weather	58,365	93.4%	2.1%	3.3%	98.9%
VFR	53,034	93.6%	1.8%	3.4%	98.9%
IFR	5,331	91.3%	5.7%	1.7%	98.7%
Precipitation	4,224	89.6%	4.9%	3.9%	98.3%

20-knot Crosswind

	<u>Occurrences</u>	<u>RW 9-27</u>	<u>ADDITIONAL</u>		<u>TOTAL</u>
			<u>RW 4</u>	<u>RW 22</u>	
All Weather	58,365	99.7%	0.1%	0.2%	100.0%
VFR	53,034	99.7%	0.1%	0.2%	100.0%
IFR	5,331	99.2%	0.6%	0.1%	100.0%
Precipitation	4,224	99.0%	0.5%	0.4%	100.0%

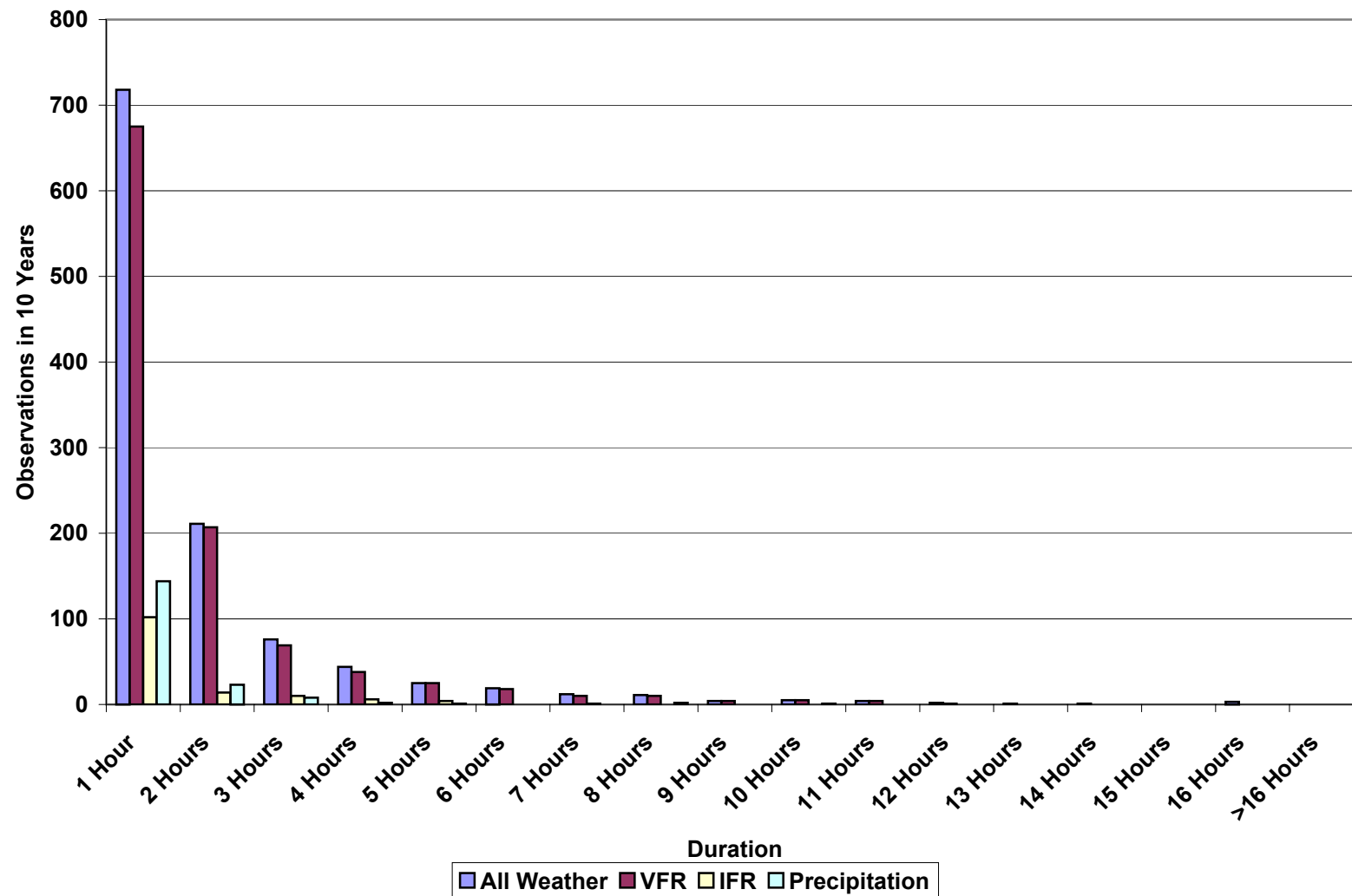
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99.7 percent coverage of all-weather conditions under 20-knot crosswind. With the addition of Runway 4-22, wind coverage totals 99.8 percent and 100 percent under 16-knot and 20-knot allowable crosswind components, respectively.

6. In addition to the percentage of wind coverage, another important factor to consider is the duration of those periods when the runway configuration does not meet maximum allowable crosswind components. **Exhibits I-5** through **I-8** present the duration of “out-of-crosswind” occurrences under the various weather conditions for the 10-year period for the Runway 9-27 and Runway 4-22 configuration. As shown, the “out-of-crosswind” occurrences typically have limited durations, with the vast majority lasting one hour or less¹.
7. **Table I-3** and **Exhibits I-9** through **I-16** present information on wind coverage and out of crosswind conditions for Runway 9-27 and Runway 14-32. As shown, wind coverages for the combination of Runway 9-27 and Runway 14-32 are less than those provided by Runway 9-27 and Runway 4-22 in all cases.
8. **Table I-4** and **Exhibit I-17** presents wind coverages for the various configurations under various crosswind components during precipitation events. As shown, the combination of Runway 9-27 and Runway 4-22 provides greater coverage during precipitation events than that provided by Runway 9-27 and Runway 14-32. This is most significant at the lower crosswind conditions that are likely more critical during these conditions.

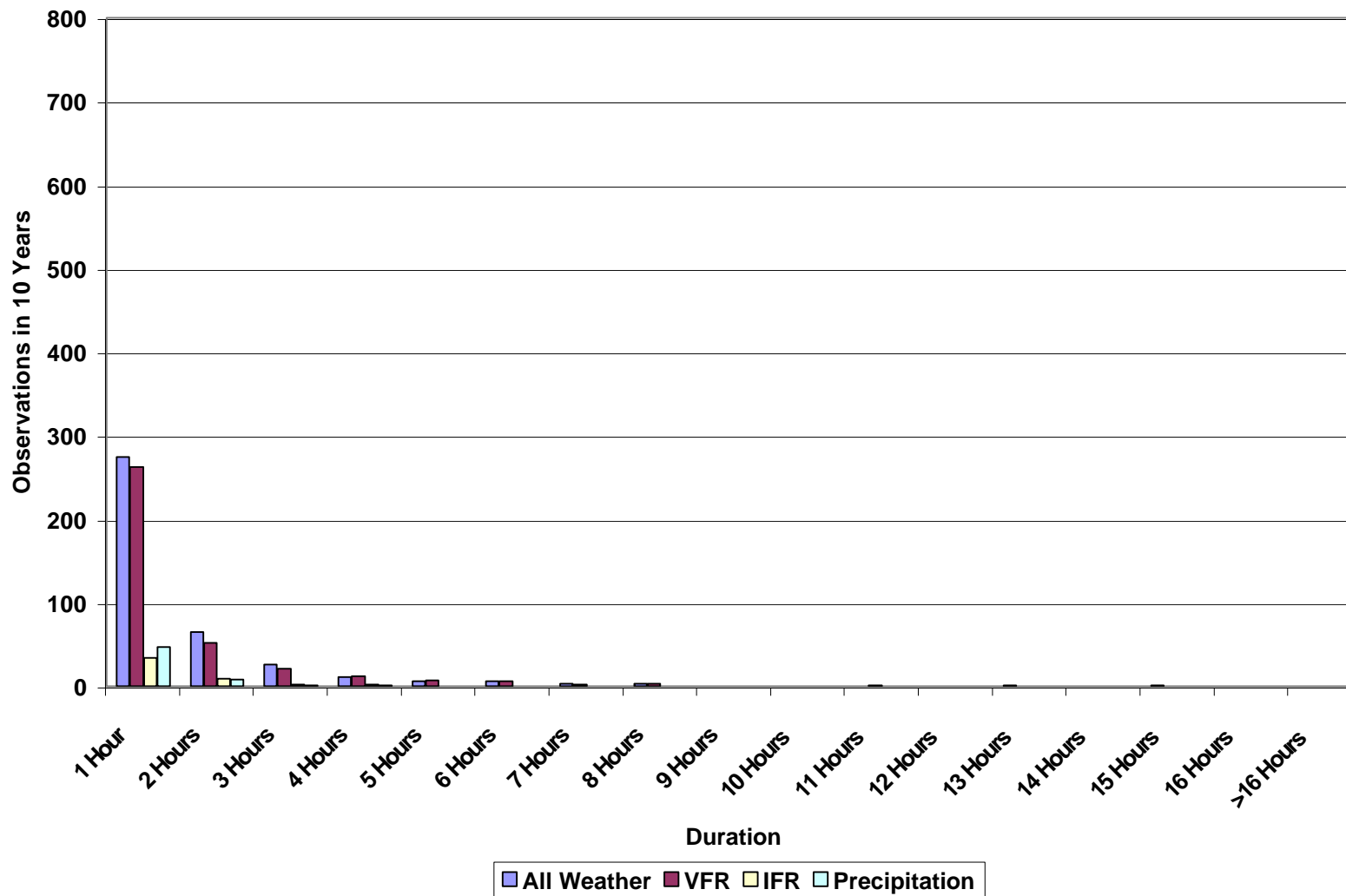
¹ Weather observations are collected on an hourly basis, with the observation reported being the prevailing weather at that moment. The actual duration of a single observation could technically range for a few minutes to slightly less than two hours. For the purposes of this analysis, it was assumed that an “out-of-crosswind” occurrence that occurred in an isolated hour had duration of one hour, that two consecutive “out-of-crosswind” observations had duration of two hours, etc.

**EXHIBIT I-5
Out of Crosswind Distribution - 10.5-knot Crosswind
9-27 and 4-22**



Wind Data for 1991 through 2000, 06:00 through 22:00
Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina
Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-6
Out of Crosswind Distribution - 13-knot Crosswind
9-27 and 4-22**

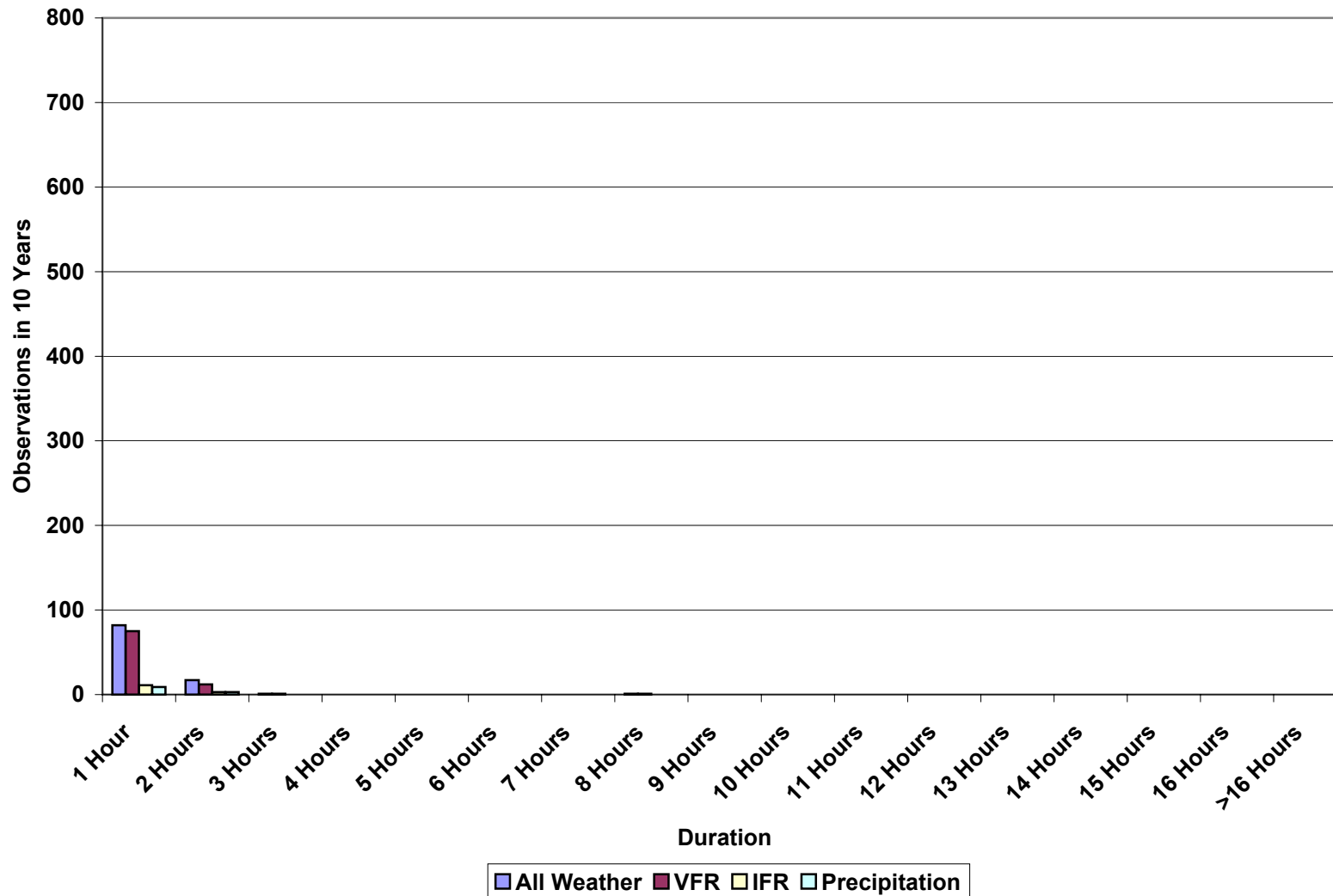


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-7
Out of Crosswind Distribution - 16-knot Crosswind
9-27 and 4-22**

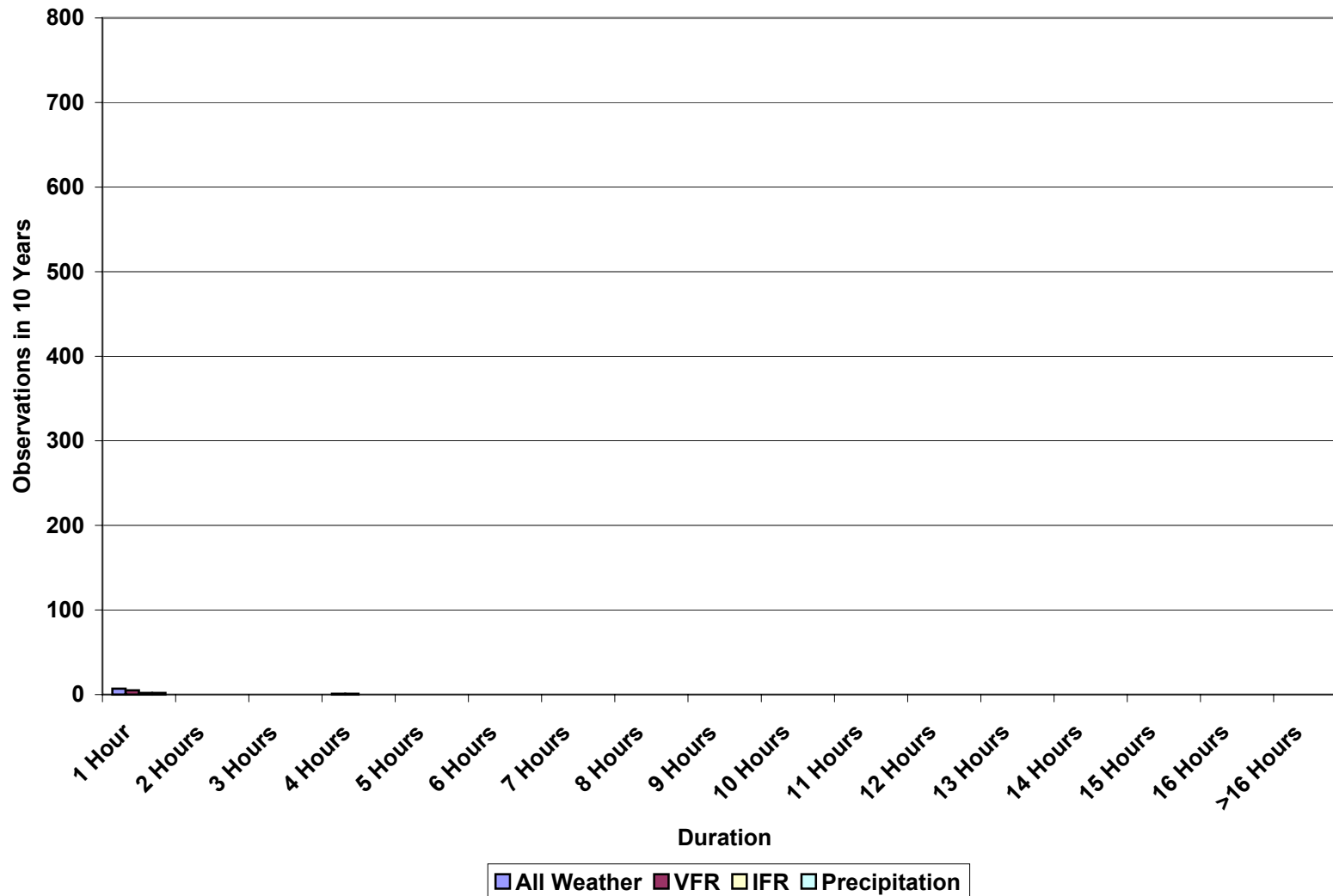


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-8
Out of Crosswind Distribution - 20-knot Crosswind
9-27 and 4-22**



Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**TABLE I-3
Additional Coverage Provided
by RW 14-32**

10.5-knot Crosswind

		<u>ADDITIONAL</u>			
	<u>Occurrences</u>	<u>RW 9-27</u>	<u>RW 32</u>	<u>RW 14</u>	<u>TOTAL</u>
All Weather	58,365	85.3%	3.7%	3.6%	92.6%
VFR	53,034	85.6%	3.5%	3.7%	92.9%
IFR	5,331	81.9%	5.1%	2.7%	89.7%
Precipitation	4,224	78.7%	4.6%	5.5%	88.8%

16-knot Crosswind

		<u>ADDITIONAL</u>			
	<u>Occurrences</u>	<u>RW 9-27</u>	<u>RW 32</u>	<u>RW 14</u>	<u>TOTAL</u>
All Weather	58,365	98.1%	0.5%	0.7%	99.2%
VFR	53,034	98.2%	0.4%	0.7%	99.3%
IFR	5,331	96.8%	1.3%	0.4%	98.4%
Precipitation	4,224	96.5%	0.9%	0.9%	98.3%

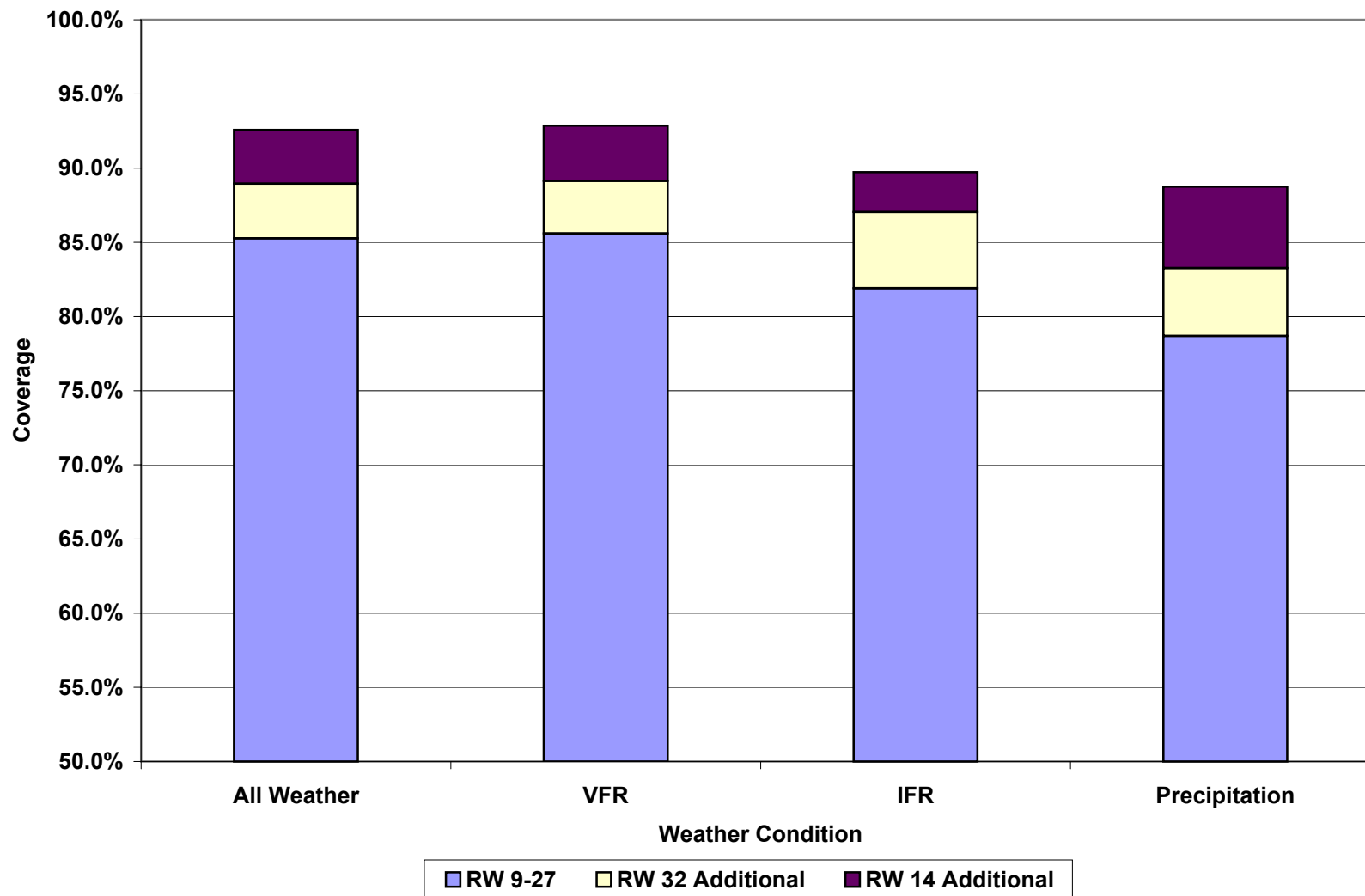
13-knot Crosswind

		<u>ADDITIONAL</u>			
	<u>Occurrences</u>	<u>RW 9-27</u>	<u>RW 32</u>	<u>RW 14</u>	<u>TOTAL</u>
All Weather	58,365	93.4%	1.7%	2.1%	97.2%
VFR	53,034	93.6%	1.5%	2.2%	97.3%
IFR	5,331	91.3%	3.1%	1.0%	95.4%
Precipitation	4,224	89.6%	2.6%	3.1%	95.2%

20-knot Crosswind

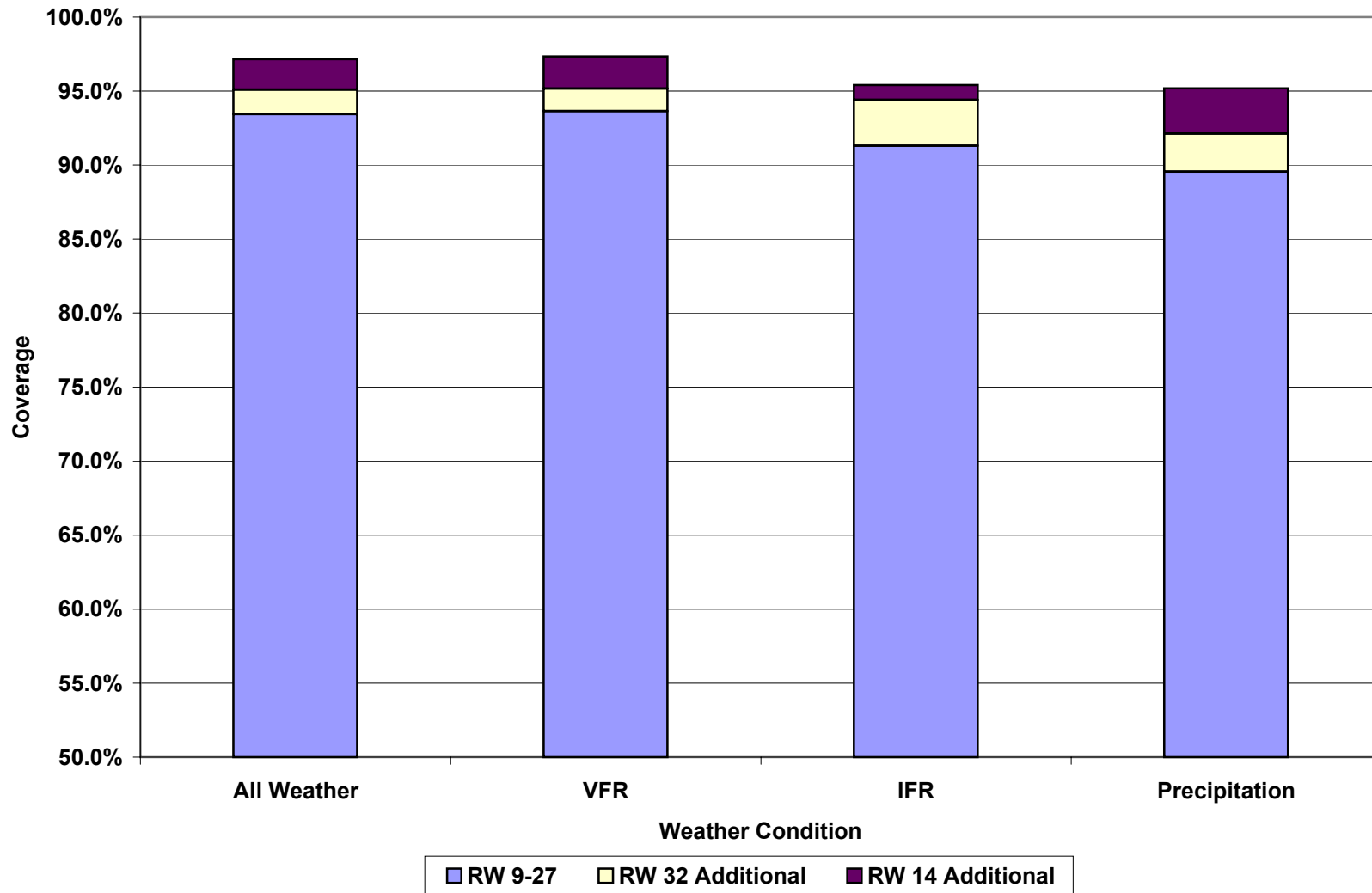
		<u>ADDITIONAL</u>			
	<u>Occurrences</u>	<u>RW 9-27</u>	<u>RW 32</u>	<u>RW 14</u>	<u>TOTAL</u>
All Weather	58,365	99.7%	0.1%	0.1%	99.9%
VFR	53,034	99.7%	0.1%	0.1%	100.0%
IFR	5,331	99.2%	0.5%	0.1%	99.9%
Precipitation	4,224	99.0%	0.5%	0.4%	99.9%

**EXHIBIT I-9
Wind Coverage - 10.5-knot Crosswind
9-27 and 14-32**



Wind Data for 1991 through 2000, 06:00 - 22:00
Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina
Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-10
Wind Coverage - 13-knot Crosswind
9-27 and 14-32**

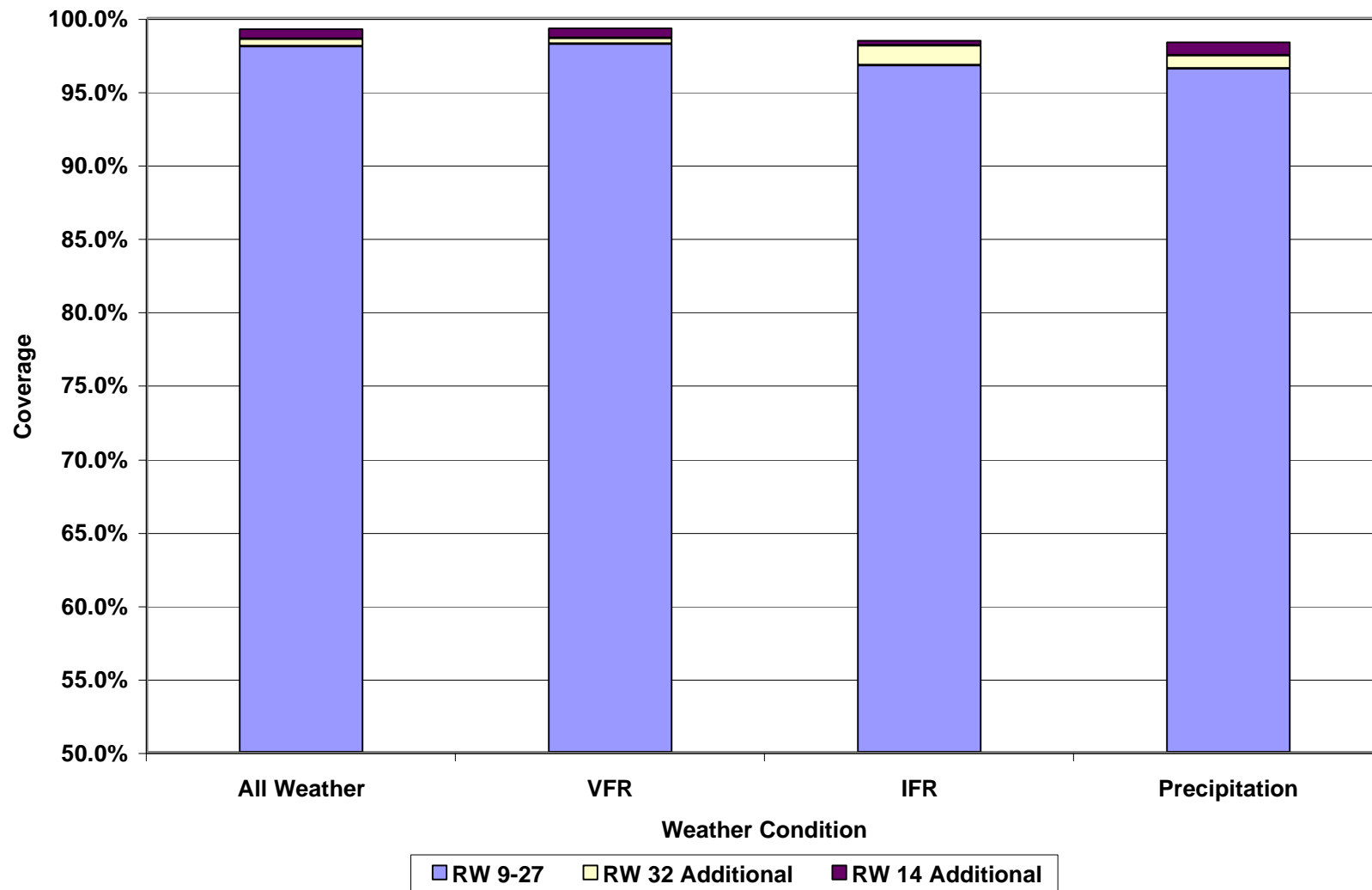


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-11
Wind Coverage - 16-knot Crosswind
9-27 and 14-32**

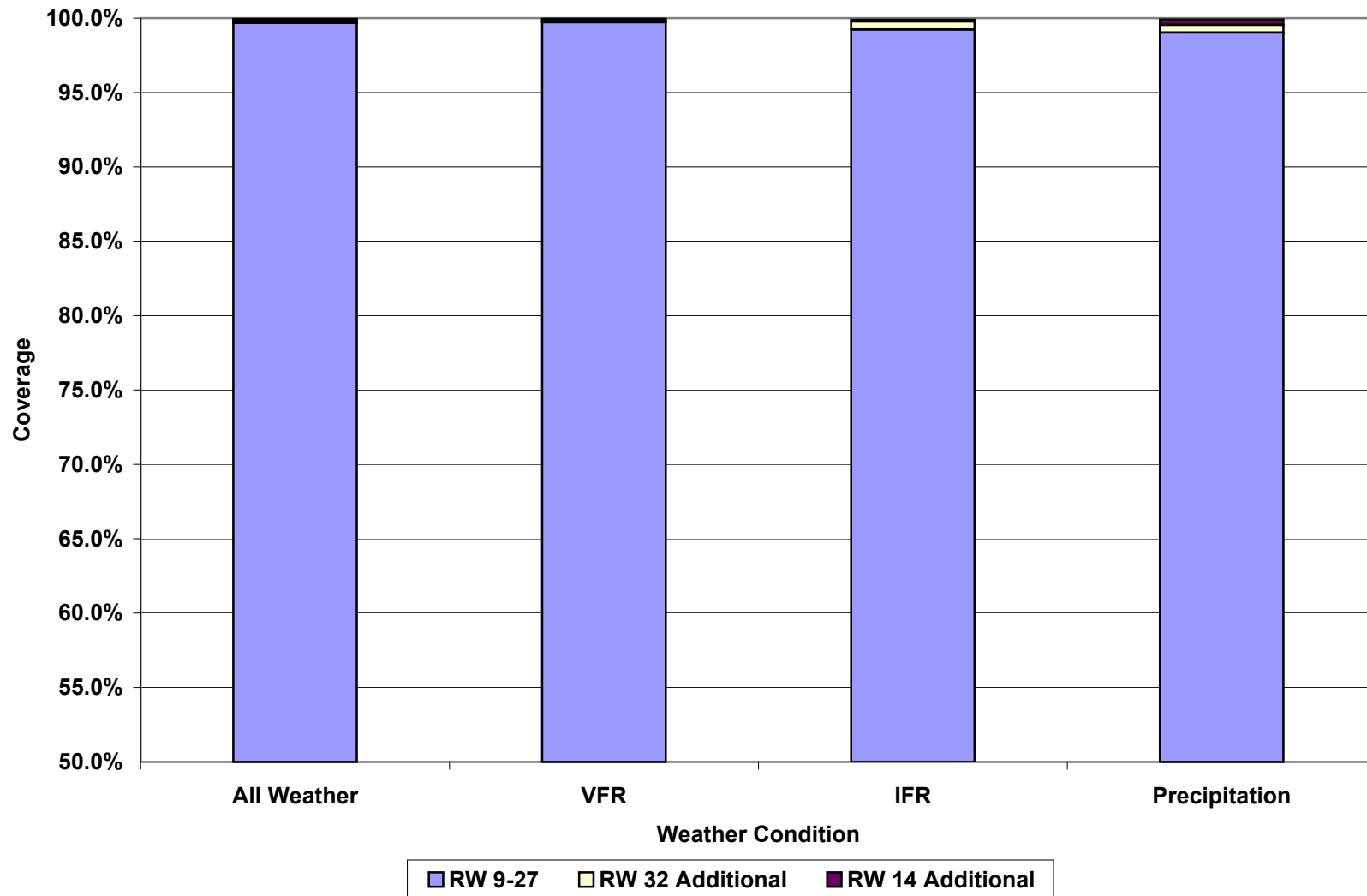


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-12
Wind Coverage - 20-knot Crosswind
9-27 and 14-32**

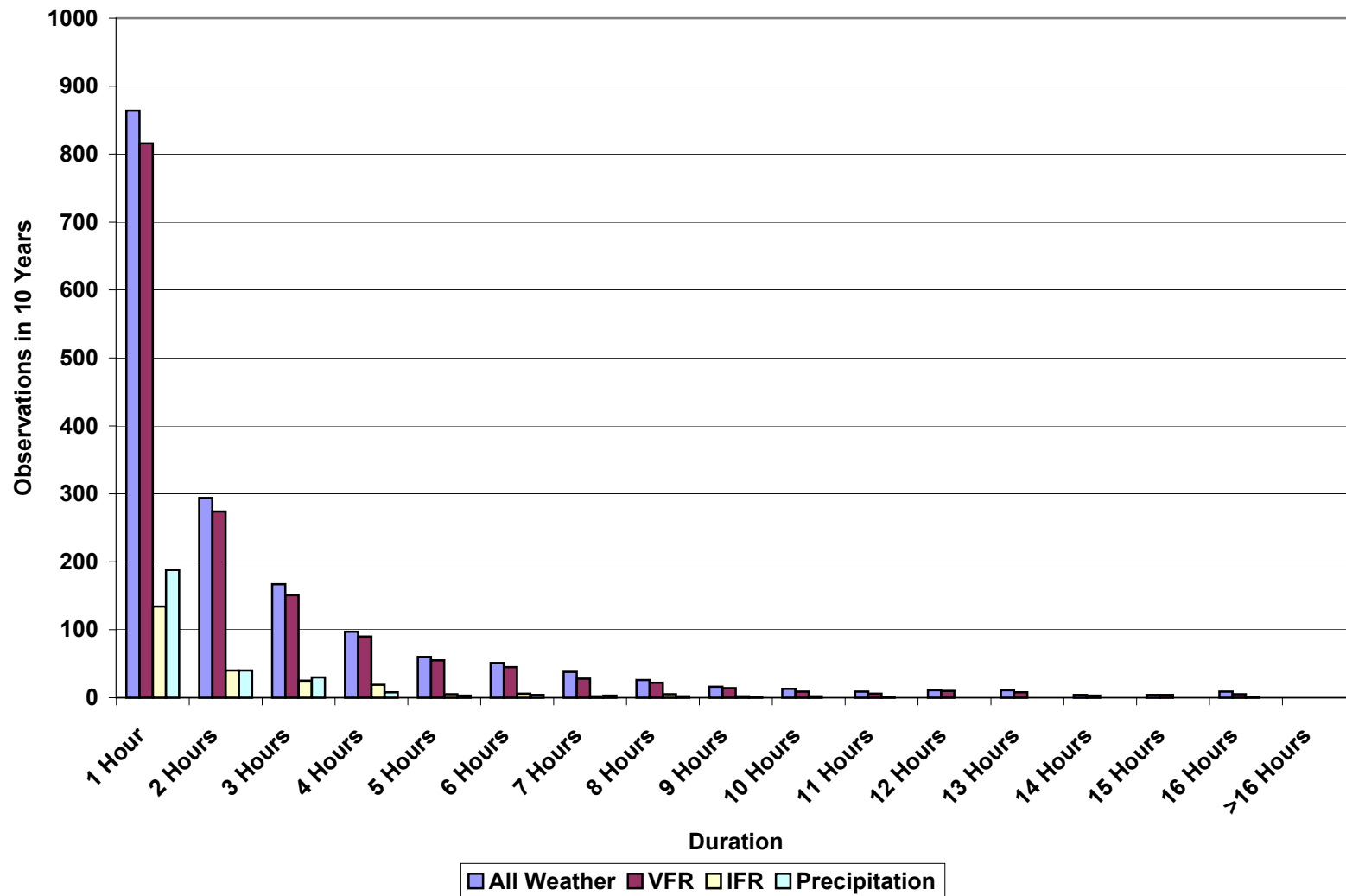


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-13
Out of Crosswind Distribution - 10.5-knot Crosswind
9-27 and 14-32**

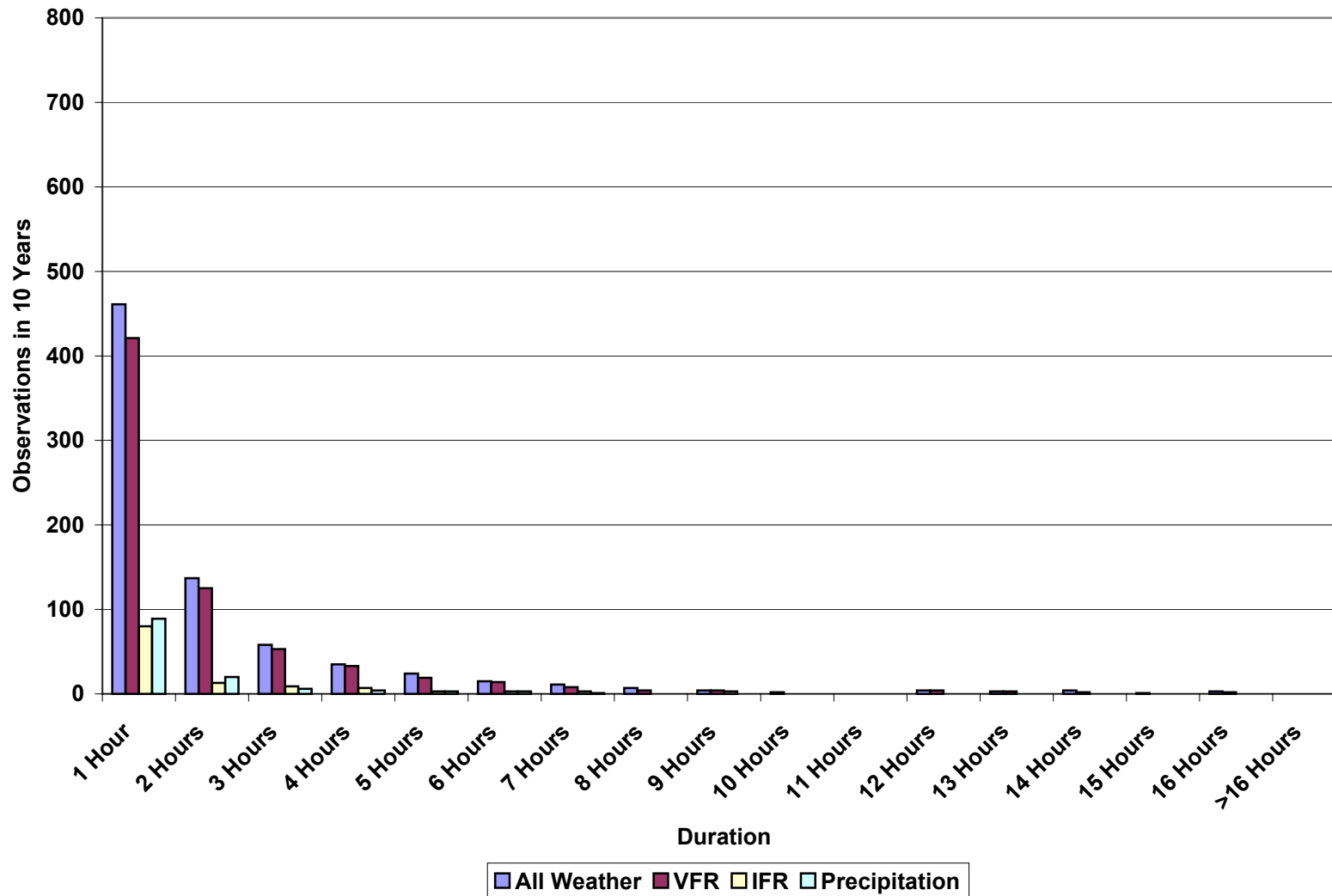


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-14
Out of Crosswind Distribution - 13-knot Crosswind
9-27 and 14-32**

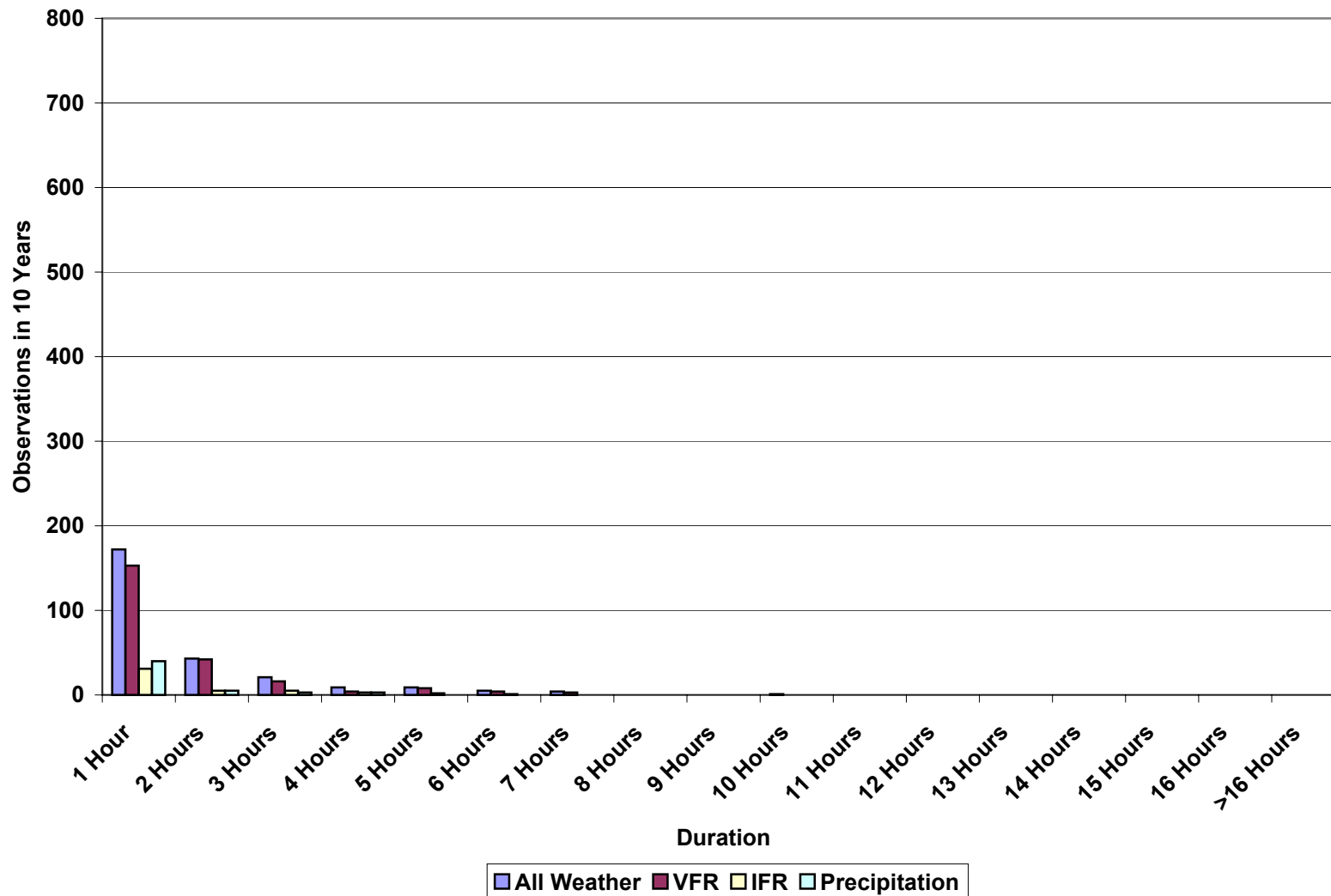


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-15
Out of Crosswind Distribution - 16-knot Crosswind
9-27 and 14-32**

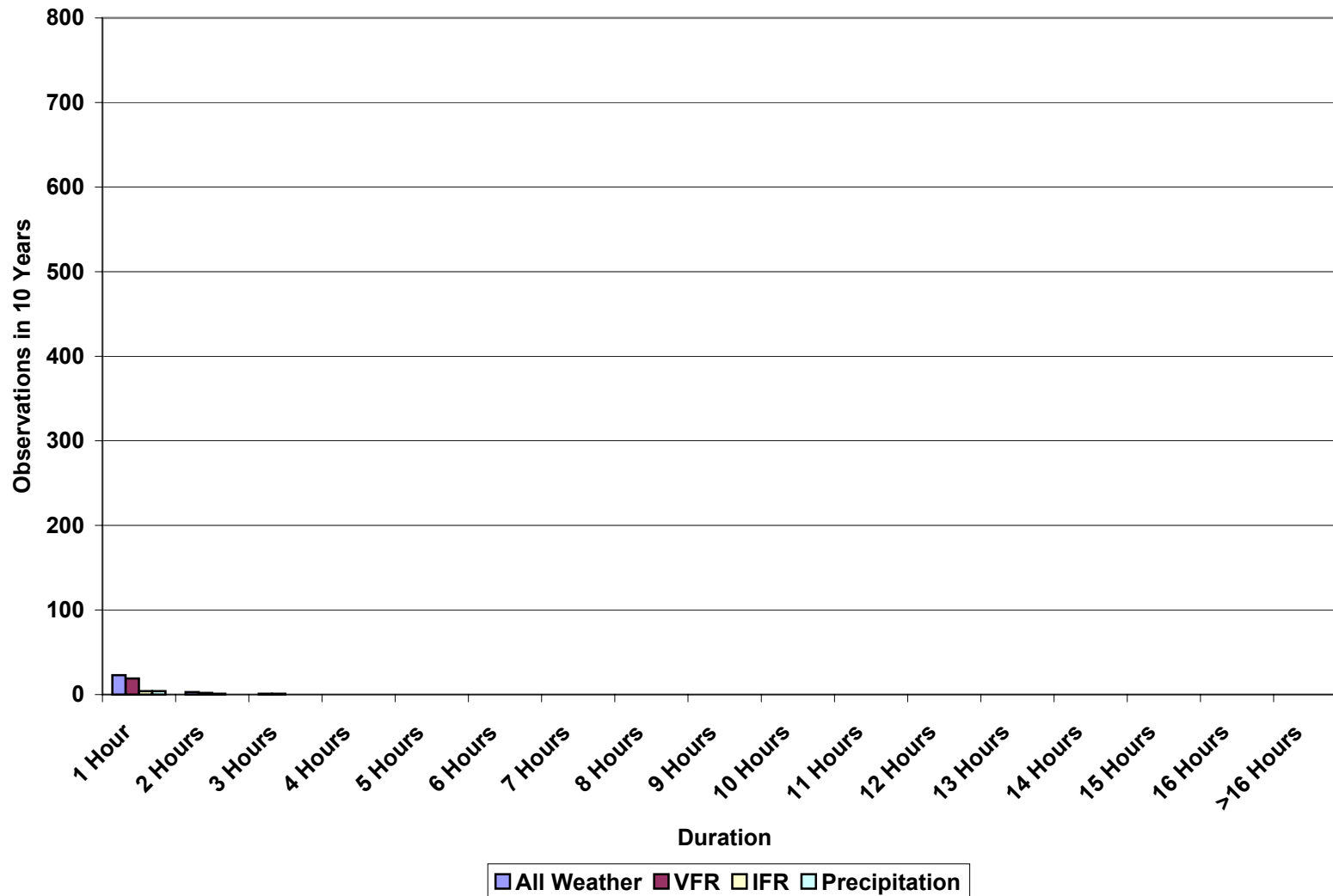


Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

Compiled by: Ricondo & Associates, Inc.

**EXHIBIT I-16
Out of Crosswind Distribution - 20-knot Crosswind
9-27 and 14-32**



Wind Data for 1991 through 2000, 06:00 - 22:00

Source: National Oceanic and Atmospheric Administration; Asheville, North Carolina

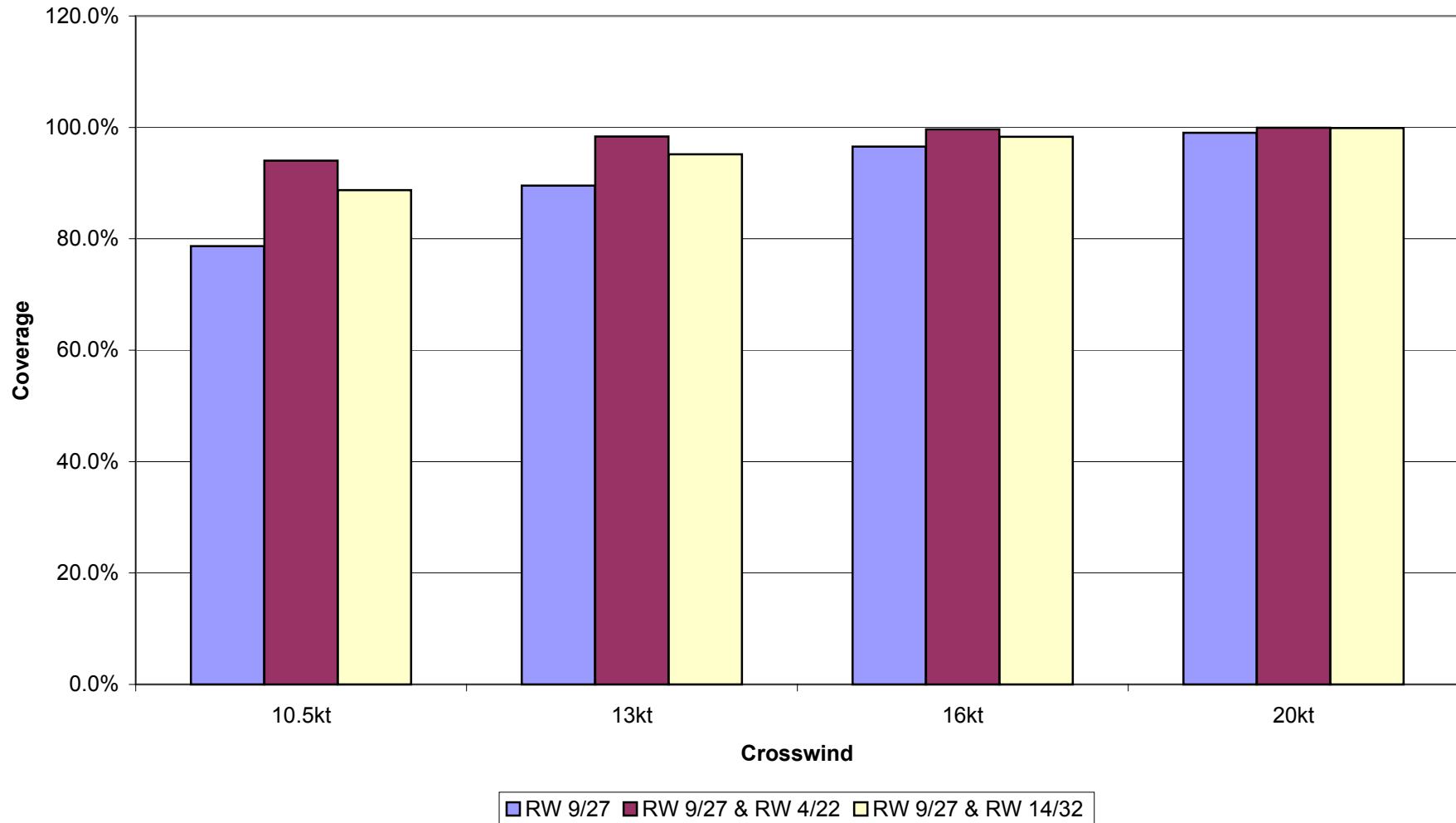
Compiled by: Ricondo & Associates, Inc.

**TABLE I-4
Wind Coverage During Precipitation**

	<u>Occurrences</u>	<u>RW 9-27</u>	<u>RW 9-27 & RW 4-22</u>	<u>RW 9-27 & RW 14-32</u>
10.5-knot Crosswind	4,224	78.7%	94.0%	88.8%
13-knot Crosswind	4,224	89.6%	98.3%	95.2%
16-knot Crosswind	4,224	96.5%	99.6%	98.3%
20-knot Crosswind	4,224	99.0%	100.0%	99.9%

Weather Data for 1991 through 2000, 06:00 - 22:00

**EXHIBIT I-17
Wind Coverage
During Precipitation**



II. DESIGN DAY SCHEDULE

1. This section provides a summary of historical activity for the Airport for purposes of analyzing demand patterns and fluctuations in air traffic that exist due to seasonal service provided by the signatory carriers and/or charter operators. In addition, a preliminary assessment of air carrier activity trends during 2001 is provided to help understand the effects that the current economic slowdown and the September 11, 2001 terrorist attacks have had on the aviation industry as a whole and specifically on activity volumes and traffic patterns at the Airport. This initial assessment of historic airport activity was limited to the review of total aircraft operations served by the Airport from 1990 through November 2001. Traffic patterns in 2000 and 2001 were analyzed in further detail to identify recent operating trends and to understand some of the near-term effects that appear to be associated with the current economic environment and the events that unfolded on September 11.
2. A primary objective of this discussion is to assist in the selection of a pre-September 11 or a post-September 11 airline schedule of activity for the Airport as representative of future patterns of activity to be used in the airfield simulation modeling effort and other analyses. The information that follows should assist in understanding some of the key differences that exist between the pre- and post-September 11 airline schedules.

Annual Distribution of Traffic

Table II-1 summarizes the total aircraft operations served by the Airport from 1990 through 2000. The aircraft activity has been summarized by month for each year in order to understand how aircraft operations have historically been distributed throughout the year. While this data does not clearly articulate the seasonality patterns that exist among scheduled and unscheduled carriers, as well as seasonal service to some domestic or international destinations, the distribution of total aircraft activity presented is effective in illustrating the relatively even distribution of traffic that has historically been experienced at the Airport during the last decade. As shown in Table II-1, total aircraft operations in the peak month have averaged 8.8 percent of total annual aircraft operations. For the 11- year period, August has, on average, represented the peak month. It is important to recognize that during these years O'Hare operated under the High Density Rule which may have materially affected peaking characteristics at the Airport.

Tables II-2 and II-3 provide a breakdown of domestic air carrier departures for 2000 and 2001, respectively. For each year, the peak month has been shaded in yellow. As shown, October represented the peak month in 2000 for domestic air carrier departures. In 2001, August was the peak month for domestic departures, even though it is difficult to confirm whether August would have still been the peak month if the September 11 events had not occurred. In addition to the overall peak month, the peak month of activity for each carrier has been shaded in blue.

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**Table II-1
O'Hare International Airport
Total Aircraft Operations
1990-2000 Monthly Distributions**

	1990		1991		1992		1993		1994		1995	
	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual
January	66,715	8.2%	64,434	7.9%	69,150	8.2%	68,988	8.0%	66,985	7.6%	69,744	7.7%
February	59,209	7.3%	58,892	7.2%	64,749	7.7%	64,302	7.5%	62,757	7.1%	66,944	7.4%
March	69,295	8.5%	66,689	8.2%	66,029	7.9%	71,407	8.3%	76,025	8.6%	76,980	8.6%
April	68,308	8.4%	66,280	8.1%	68,922	8.2%	70,507	8.2%	73,198	8.3%	74,199	8.2%
May	70,986	8.7%	68,145	8.4%	68,895	8.2%	73,294	8.5%	77,011	8.7%	76,919	8.5%
June	68,283	8.4%	68,336	8.4%	71,184	8.5%	71,389	8.3%	75,787	8.6%	75,227	8.4%
July	70,272	8.7%	71,876	8.8%	73,390	8.7%	74,132	8.6%	77,862	8.8%	77,209	8.6%
August	70,779	8.7%	73,516	9.0%	74,679	8.9%	74,347	8.7%	79,118	9.0%	79,947	8.9%
September	66,690	8.2%	69,834	8.6%	71,071	8.5%	70,821	8.2%	74,716	8.5%	76,438	8.5%
October	70,396	8.7%	71,018	8.7%	73,309	8.7%	74,423	8.7%	77,199	8.8%	79,259	8.8%
November	65,791	8.1%	65,666	8.1%	68,625	8.2%	71,376	8.3%	72,617	8.2%	73,665	8.2%
December	64,672	8.0%	68,876	8.5%	70,744	8.4%	74,222	8.6%	68,837	7.8%	73,748	8.2%
TOTAL	811,396	100.0%	813,562	100.0%	840,747	100.0%	859,208	100.0%	882,112	100.0%	900,279	100.0%

	1996		1997		1998		1999		2000		11-Year (1990-2000) Average % of Annual
	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual	Operations	% of Annual	
January	70,367	7.7%	69,469	7.9%	71,342	8.0%	67,597	7.5%	72,220	7.9%	7.9%
February	70,447	7.7%	65,863	7.4%	67,381	7.5%	65,155	7.3%	69,493	7.6%	7.4%
March	77,002	8.5%	76,424	8.6%	74,180	8.3%	77,272	8.6%	78,990	8.7%	8.4%
April	75,477	8.3%	74,285	8.4%	74,599	8.3%	74,678	8.3%	74,205	8.2%	8.3%
May	75,636	8.3%	74,889	8.5%	74,603	8.3%	76,318	8.5%	75,314	8.3%	8.5%
June	76,908	8.5%	74,406	8.4%	73,942	8.2%	74,374	8.3%	74,729	8.2%	8.4%
July	78,989	8.7%	77,691	8.8%	78,292	8.7%	76,890	8.6%	77,866	8.6%	8.7%
August	81,368	8.9%	77,267	8.7%	77,898	8.7%	79,766	8.9%	79,133	8.7%	8.8%
September	76,337	8.4%	74,055	8.4%	75,684	8.4%	75,303	8.4%	76,538	8.4%	8.4%
October	79,166	8.7%	76,843	8.7%	78,913	8.8%	78,774	8.8%	82,104	9.0%	8.8%
November	73,651	8.1%	70,380	8.0%	74,023	8.2%	74,774	8.3%	77,371	8.5%	8.2%
December	74,215	8.2%	73,189	8.3%	76,497	8.5%	75,327	8.4%	71,026	7.8%	8.2%
TOTAL	909,563	100.0%	884,761	100.0%	897,354	100.0%	896,228	100.0%	908,989	100.0%	

**Table II-2
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O'Hare International Airport
Year 2000 - Monthly Departures by Carrier
Domestic Activity**

Air Carrier	Designation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
		(31-DAYS)	(28-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)
AER LINGUS	EI	0	0	0	0	0	0	0	0	0	0	0	0
AEROFLOT	SU	0	0	0	0	0	0	0	0	0	0	0	0
AEROMEXICO	AM	0	0	0	0	0	0	0	0	0	0	0	0
AIR CANADA	AC	0	0	0	0	0	0	0	0	0	0	0	0
AIR FRANCE	AF	0	0	0	0	0	0	0	0	0	0	0	0
AIR INDIA	AI	0	0	0	0	0	0	0	0	0	0	0	0
AIR JAMAICA	JM	0	0	0	0	0	0	0	0	0	0	0	0
AIR WISCONSIN AIR/UNITED EXPRESS	ZW	1,112	1,362	1,649	1,540	1,591	1,726	1,909	1,966	1,970	2,292	2,192	2,192
AIRPLUS COMET	2Z	0	0	0	0	0	0	0	0	0	0	0	0
ALASKA AIRLINES	AS	0	0	0	0	0	26	31	31	30	31	29	31
ALITALIA	AZ	0	0	0	0	0	0	0	0	0	0	0	0
ALL NIPPON AIRWAYS	NH	0	0	0	0	0	0	0	0	0	0	0	0
ALLEGRO AIR	LL	0	0	2	0	0	0	0	0	0	0	0	0
AMERICAN TRANS AIR	TZ	38	57	68	68	44	47	40	46	51	58	48	58
AMERICA WEST	HP	236	213	213	196	200	200	207	232	200	209	214	222
AMERICAN	AA	8,099	7,708	8,741	8,387	8,557	8,332	8,916	9,007	8,501	9,048	8,663	7,881
ATLANTIC COAST/UNITED EXPRESS	DH	721	778	930	875	885	895	1,047	1,046	990	1,165	1,371	1,115
AUSTRIAN AIR	OS	0	0	0	0	0	0	0	0	0	0	0	0
BRITISH AIRWAYS	BA	0	0	0	0	0	0	0	0	0	0	0	0
CANADA INTERNATIONAL	CP	0	0	0	0	0	0	0	0	0	0	0	0
CASINO EXPRESS	XP	2	4	4	4	4	4	6	0	4	5	1	3
COMAIR	OH	0	0	0	0	0	16	19	16	18	18	56	55
CONTINENTAL EXPRESS	IN	77	77	88	79	82	78	78	77	79	87	81	70
CONTINENTAL	CO	533	536	582	546	561	555	566	594	540	581	552	492
DELTA	DL	754	700	818	769	768	771	759	796	751	812	686	660
EL AL	LY	12	7	5	9	4	8	8	1	4	5	11	9
IBERIA	IB	0	0	0	0	0	0	0	0	0	0	0	0
JAPAN AIRLINES	JL	0	0	0	0	0	0	0	0	0	0	0	0
KLM	KL	0	0	0	0	0	0	0	0	0	0	0	0
KOREAN	KE	0	0	0	0	0	0	0	0	0	0	0	0
KUWAIT AIRWAYS	KA	0	0	0	0	0	0	0	0	0	0	0	0
LOT-POLISH	LO	0	0	0	0	0	0	0	0	0	0	0	0
LUFTHANSA	LH	0	0	0	0	0	0	0	0	0	0	0	0
MESA AIRLINES	YV	0	0	0	0	0	0	46	89	86	96	119	110
MEXICANA	MX	0	0	0	0	0	0	0	0	0	0	0	0
NORTHWEST	NW	758	717	801	745	791	755	831	810	761	837	762	658
ROYAL JORDANIAN	RJ	0	0	0	0	0	0	0	0	10	0	0	0
RYAN INTERNATIONAL	II	18	10	21	7	2	2	4	4	4	4	7	21
SABENA	SN	0	0	0	0	0	30	0	0	0	0	0	0

**Table II-2
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O'Hare International Airport
Year 2000 - Monthly Departures by Carrier
Domestic Activity**

Air Carrier	Designation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
		(31-DAYS)	(28-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)
SCANDINAVIAN	SK	0	0	0	0	0	0	0	0	0	0	0	0
SPIRIT AIRLINES	SK	0	0	0	0	0	0	0	0	0	0	130	132
SWISSAIR	SR	0	0	0	0	0	0	0	0	0	0	0	0
TAROM	RO	0	0	0	0	8	0	0	0	0	0	0	0
TRANS WORLD AIRLINES	TW	303	305	315	296	303	297	303	320	319	316	297	281
TRANSMERIDIAN	22	11	18	31	29	31	10	9	51	31	72	63	15
TURKISH AIRLINES	TK	0	0	0	0	0	0	0	0	0	0	0	0
U.S. AIR	AL	599	571	641	595	611	588	630	636	611	645	623	587
UNITED	UA	11,357	11,020	12,658	11,711	11,688	11,404	11,505	11,549	11,607	12,533	11,267	10,535
VIRGIN ATLANTIC	VA	0	0	0	0	0	0	0	0	0	0	0	0
CHAMPION AIR	MG	0	0	0	1	0	0	0	0	0	0	0	0
SUN COUNTRY	SY	2	6	4	6	0	0	0	0	0	35	51	48
NATIONAL AIR	N7	0	0	0	0	0	0	0	0	2	0	0	0
NORTH AMERICAN AIRLINES	NA	0	0	0	0	0	0	0	0	0	0	17	15
SINGAPORE PASSENGER AIRLINES	SA	0	0	0	0	0	0	0	0	0	0	0	0
TRANS STATE AIRLINES	9N	211	38	0	0	0	0	0	0	0	0	0	0
MIAMI AIR INTERNATIONAL	GL	0	0	0	4	0	0	0	0	0	0	0	0
TRADEWINDS	IK	0	0	0	0	0	0	0	2	1	2	0	0
UFS INC./UNITED EXPRESS	U2	293	80	0	0	0	0	0	0	0	0	0	0
AMERICAN EAGLE	MQ	4,140	3,849	4,505	4,209	4,180	4,083	4,394	4,391	4,215	4,478	4,366	3,629
GREAT LAKES	ZK	1,192	1,171	1,214	1,006	1,014	1,159	1,342	1,363	1,279	1,315	1,295	1,126
TOTAL ¹		30,468	29,227	33,290	31,082	31,324	30,986	32,650	33,027	32,064	34,644	32,901	29,945
Average Daily Departures		983	1,044	1,074	1,036	1,010	1,033	1,053	1,065	1,069	1,118	1,097	998

¹Express One not included

Includes some activity on foreign flag carriers that may have cleared Customs at other U.S. Gateways.

	Peak Month (All Activity)
	Peak Month (Individual Carrier)

**Table II-3
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O'Hare International Airport
Year 2001 - Monthly Departures by Carrier
Domestic Activity**

Air Carrier	Designation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
		(31-DAYS)	(28-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)
AER LINGUS	EI	0	0	0	0	0	0	0	0	0	0	0	0
AEROFLOT	SU	0	0	0	0	0	0	0	0	0	0	0	0
AEROMEXICO	AM	0	0	0	0	0	0	0	0	0	0	0	0
AIR CANADA	AC	0	0	0	0	0	0	0	0	0	0	0	0
AIR FRANCE	AF	0	0	0	0	0	0	0	0	0	0	0	0
AIR INDIA	AI	0	0	0	0	0	0	0	0	0	0	0	0
AIR JAMAICA	JM	0	0	0	0	0	0	0	0	0	0	0	0
AIR WISCONSIN AIR/UNITED EXPRESS	ZW	2,039	1,861	2,136	2,287	2,882	2,754	2,897	2,821	2,156	2,527	2,471	2,392
AIRPLUS COMET	2Z	0	0	0	0	0	0	0	0	0	0	0	0
ALASKA AIRLINES	AS	30	28	31	30	31	29	31	31	27	31	30	31
ALITALIA	AZ	0	0	0	0	0	0	0	0	0	0	0	0
ALL NIPPON AIRWAYS	NH	0	0	0	0	0	0	0	0	0	0	0	0
ALLEGRO AIR	LL	3	0	0	1	0	0	0	0	0	0	0	0
AMERICAN TRANS AIR	TZ	64	74	76	76	56	44	42	37	10	2	4	11
AMERICA WEST	HP	239	214	244	235	241	235	246	246	197	216	228	233
AMERICAN	AA	8,647	7,745	8,735	8,727	9,167	8,785	9,343	9,229	6,287	6,427	7,403	8,042
ATLANTIC COAST/UNITED EXPRESS	DH	1,277	1,086	1,232	1,260	1,283	1,353	1,894	1,944	1,411	1,951	2,567	2,694
AUSTRIAN AIR	OS	0	0	0	0	0	0	0	0	0	0	0	0
BRITISH AIRWAYS	BA	0	0	0	0	0	0	0	0	0	0	0	0
CANADA INTERNATIONAL	CP	0	0	0	0	0	0	0	0	0	0	0	0
CASINO EXPRESS	XP	2	3	2	1	2	2	2	2	1	3	1	2
COMAIR	OH	57	51	43	0	0	0	47	93	75	97	107	97
CONTINENTAL EXPRESS	IN	79	72	87	78	86	86	104	112	63	56	135	135
CONTINENTAL	CO	563	495	459	560	572	542	619	665	422	435	425	425
DELTA	DL	660	644	739	678	699	672	838	871	593	583	608	622
EL AL	LY	14	12	13	12	8	12	12	15	7	10	11	13
IBERIA	IB	0	0	0	0	0	0	0	0	0	0	0	0
JAPAN AIRLINES	JL	0	0	0	0	0	0	0	0	0	0	0	0
KLM	KL	0	0	0	0	0	0	0	0	0	0	0	0
KOREAN	KE	0	0	80	0	0	0	0	0	0	0	0	0
KUWAIT AIRWAYS	KA	0	0	0	0	0	0	0	0	0	0	0	0
LOT-POLISH	LO	0	0	0	0	0	0	0	0	0	0	0	0
LUFTHANSA	LH	0	0	0	0	0	0	0	0	0	0	0	0
MESA AIRLINES	YV	121	102	121	115	120	111	146	140	94	96	82	85
MEXICANA	MX	0	0	0	0	0	0	0	0	0	0	0	0
NORTHWEST	NW	800	727	826	796	858	807	838	840	632	593	658	625
ROYAL JORDANIAN	RJ	0	0	0	0	0	0	0	0	0	0	0	9
RYAN INTERNATIONAL	II	16	11	17	16	5	6	4	2	2	0	2	6
SABENA	SN	0	0	0	0	0	0	0	0	0	0	0	0

**Table II-3
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O'Hare International Airport
Year 2001 - Monthly Departures by Carrier
Domestic Activity**

Air Carrier	Designation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
		(31-DAYS)	(28-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)
SCANDINAVIAN	SK	0	0	0	0	0	0	0	0	0	0	0	0
SPIRIT AIRLINES	SK	145	140	173	90	188	183	246	248	160	124	162	200
SWISSAIR	SR	0	0	0	0	0	0	0	0	0	0	0	0
TAROM	RO	0	0	0	0	0	0	0	0	0	0	0	0
TRANS WORLD AIRLINES	TW	218	278	312	298	317	306	315	319	264	318	277	0
TRANSMERIDIAN	22	8	12	13	3	7	7	2	4	8	5	12	4
TURKISH AIRLINES	TK	0	0	0	0	0	0	0	0	0	0	0	0
U.S. AIR	AL	633	554	624	599	627	615	643	657	483	523	622	595
UNITED	UA	11,603	10,451	11,796	11,560	12,144	11,763	12,218	12,219	8,519	10,029	9,349	9,606
VIRGIN ATLANTIC	VA	0	0	0	0	0	0	0	0	0	0	0	0
CHAMPION AIR	MG	0	1	1	3	0	2	4	0	0	1	0	0
SUN COUNTRY	SY	0	47	56	51	54	56	57	58	58	32	31	1
NATIONAL AIR	N7	0	0	0	0	56	59	62	62	54	62	61	68
NORTH AMERICAN AIRLINES	NA	0	0	0	0	10	0	0	0	0	0	0	11
SINGAPORE PASSENGER AIRLINES	SA	0	0	0	0	0	0	0	0	12	0	0	0
MIAMI AIR INTERNATIONAL	GL	0	0	0	0	0	0	0	0	0	0	0	4
AMERICAN EAGLE	MQ	4,242	3,988	4,637	4,314	4,852	4,764	5,086	5,086	4,265	4,831	4,416	4,652
GREAT LAKES	ZK	1,214	928	1,055	990	612	481	489	465	268	334	301	333
TOTAL ¹		32,674	29,524	33,508	32,780	34,877	33,674	36,185	36,166	26,068	29,286	29,963	30,896
Average Daily Departures		1,054	1,054	1,081	1,093	1,125	1,122	1,167	1,167	869	945	999	N/A

¹Express One not included

Includes some activity on foreign flag carriers that may have cleared Customs at other U.S. Gateways.

Peak Month (All Activity)

Peak Month (Individual Carrier)

Similarly, **Tables II-4 and II-5** provide a breakdown of international and trans-border air carrier departures for 2000 and 2001, respectively. Peak month activity (in this case, July for both years) is denoted by the yellow shading. In addition, the peak month of activity for each carrier has been shaded in blue.

A review of the 2001 fourth quarter traffic reports also indicates that a quicker rebound in activity volumes seems to have been experienced by many of the foreign flag carriers. By October 2001, the following foreign flag carriers had re-established the level of monthly operations that were being provided prior to September 11: Air Jamaica, Alitalia, All Nippon Airways, British Airways, EL Al, Iberia, Japan Airlines, KLM, Korean Airlines, Lufthansa, Scandinavian, and Swissair.

Daily Distribution of Aircraft Operations

In addition to analyzing the monthly distributions of annual activity for the Airport, the Airport's daily distribution of air carrier departures was also evaluated. The air carrier schedules for three days were reviewed as part of this evaluation. The selection of the three daily schedules occurred in the following manner:

- First, a pre-September 11 and a post-September 11 airline schedule were chosen in order to quantify the near-term effects the terrorist attacks have had on daily traffic patterns at the Airport. For this evaluation, August 31, 2001 (Friday) and November 30, 2001 (Friday) were randomly chosen.
- Second, the airline schedule for a day in 2000 was selected in order to assess changes in daily operating patterns that may have occurred between 2000 and 2001 as a result of a slowdown in the U.S. economy and/or less favorable financial performance by most of the U.S. flag carriers. For this purpose, November 17, 2000 (Friday) was randomly selected.
- The airline schedules for these three days provided a profile of activity for three distinct days within a one-year period.

Exhibit II-1 presents a graphical depiction of hourly arrivals at the Airport during the three days analyzed. As shown, from November 2000 to November 2001, a significant decrease in the arrival peaks (primarily in the early morning and late evening hours) was experienced. In addition, a more pronounced arrival peak has emerged in the mid-morning hours. Similarly, the early afternoon and early evening arrival peaks have become less pronounced. The arrival peak volume for the three days analyzed are summarized below:

November 17, 2000	-	approximately 110 arrivals per hour
August 31, 2001	-	approximately 123 arrivals per hour
November 30, 2001	-	approximately 112 arrivals per hour

**Table II-4
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O'Hare International Airport
Year 2000 - Monthly Departures by Carrier
International Activity**

Air Carrier	Designation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
		(31-DAYS)	(28-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)
AER LINGUS	EI	27	24	27	26	28	39	40	40	36	28	26	24
AEROFLOT	SU	8	8	9	13	14	12	14	13	13	13	13	13
AEROMEXICO	AM						8	10	8	5	4	6	9
AIR CANADA	AC	468	431	482	609	644	551	637	648	626	647	506	380
AIR FRANCE	AF	85	64	71	89	88	83	86	82	83	72	54	50
AIR INDIA	AI	13	12	13	13	13	13	13	12	13	14	12	14
AIR JAMAICA	JM	30	29	28	30	31	30	31	31	30	31	30	31
AIR WISCONSIN AIR/UNITED EXPRESS	ZW												
AIRPLUS COMET	ZZ											4	5
ALASKA AIRLINES	AS												
ALITALIA	AZ	40	42	44	44	43	45	47	44	42	44	44	44
ALL NIPPON AIRWAYS	NH	31	29	31	30	31	30	31	31	30	31	30	31
ALLEGRO AIR	LL			4	3		14						
AMERICAN TRANS AIR	TZ	40	47	52	48	18	21	24	22	19	18	24	27
AMERICA WEST	HP												
AMERICAN	AA	877	832	902	906	917	984	1,072	1,080	1,023	1,043	911	937
ATLANTIC COAST/UNITED EXPRESS	DH												
AUSTRIAN AIR	OS			6	30	31	30	31	31	29	31	30	28
BRITISH AIRWAYS	BA	62	57	62	60	62	58	62	62	59	61	59	56
CANADA INTERNATIONAL	CP	183	176	186	180	186	264	190	186	175	193	254	225
CASINO EXPRESS	XP												
COMAIR	OH												
CONTINENTAL EXPRESS	IN												
CONTINENTAL	CO												
DELTA	DL												
EL AL	LY	19	22	23	16	13	17	23	21	14	8	6	11
IBERIA	IB	30	29	31	30	31	30	31	31	30	31	30	28
JAPAN AIRLINES	JL	67	67	70	72	76	73	75	76	72	75	69	70
KLM	KL	31	30	30	30	31	30	31	31	30	31	30	31
KOREAN	KE	60	79	89	83	80	71	74	75	79	74	72	67
KUWAIT AIRWAYS	KA	9	7	9	8	9	9	9	9	8	9	9	8
LOT-POLISH	LO	25	24	25	36	48	51	54	52	38	34	40	42
LUFTHANSA	LH	62	58	68	90	93	91	93	93	89	89	60	59
MESA AIRLINES	YV												
MEXICANA	MX	212	198	216	226	255	249	264	267	224	232	231	262
NORTHWEST	NW												
ROYAL JORDANIAN	RJ	9	8	9	8	11	13	14	14		9	9	9
RYAN INTERNATIONAL	II		108	121	100	3						48	85
SABENA	SN	26	24	26	26	29		31	31	30	30	30	31

**Table II-4
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O'Hare International Airport
Year 2000 - Monthly Departures by Carrier
International Activity**

Air Carrier	Designation	JAN (31-DAYS)	FEB (28-DAYS)	MAR (31-DAYS)	APR (30-DAYS)	MAY (31-DAYS)	JUNE (30-DAYS)	JULY (31-DAYS)	AUG (31-DAYS)	SEPT (30-DAYS)	OCT (31-DAYS)	NOV (30-DAYS)	DEC (31-DAYS)
SCANDINAVIAN	SK	61	58	61	60	60	60	62	61	57	61	59	52
SPIRIT AIRLINES	SK												
SWISSAIR	SR	27	24	27	30	30	30	31	30	30	31	30	31
TAROM	RO	7	5	9	8		9	8	9	9	8	7	8
TRANS WORLD AIRLINES	TW												
TRANSMERIDIAN	22	42	37	62	38	39	65	70	57	44	46	33	35
TURKISH AIRLINES	TK	13	12	14	13	13	17	18	17	17	18	21	23
U.S. AIR	AL												
UNITED	UA	628	591	534	607	641	589	645	637	610	636	687	742
VIRGIN ATLANTIC	VA	29	28	31	29	31	30	32	31	30	31	30	30
CHAMPION AIR	MG												
SUN COUNTRY	SY	3	3	5	3								
NATIONAL AIR	N7												
NORTH AMERICAN AIRLINES	NA												
SINGAPORE PASSENGER AIRLINES	SA												
BRITISH MIDLAND	BD												
LAKER AIRWAYS	7Z				2								
MIAMI AIR INTERNATIONAL	GL				2								
TRADEWINDS	IK							2	2		2		
OMNI AIR INTERNATIONAL	OI												
TOTAL		3,224	3,163	3,377	3,598	3,599	3,616	3,855	3,834	3,594	3,685	3,504	3,498
Average Daily Departures		104	113	109	120	116	121	124	124	120	119	117	117

Peak Month (All Activity)
Peak Month (Individual Carrier)

**Table II-5
Page 1 of 2
O'Hare International Airport
Year 2001 - Monthly Departures by Carrier
International Activity**

Air Carrier	Designation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
		(31-DAYS)	(28-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)	(30-DAYS)	(31-DAYS)
AER LINGUS	EI	25	24	28	31	44	48	47	50	38	38	26	26
AEROFLOT	SU	12	12	12	13	14	12	14	13	10	4	0	0
AEROMEXICO	AM	8	8	7	10	8	11	17	16	10	6	4	18
AIR CANADA	AC	506	436	461	621	717	694	722	717	520	531	577	552
AIR FRANCE	AF	55	47	58	71	74	75	82	70	47	48	50	43
AIR INDIA	AI	13	12	13	13	13	13	14	13	9	8	8	13
AIR JAMAICA	JM	31	28	31	30	31	29	31	31	26	29	30	31
AIR WISCONSIN AIR/UNITED EXPRESS	ZW	0	0	0	0	0	0	0	0	0	0	0	0
AIRPLUS COMET	2Z	4	4	5	4	0	0	0	0	0	0	0	0
ALASKA AIRLINES	AS	0	0	0	0	0	0	0	0	0	0	0	0
ALITALIA	AZ	45	40	44	43	44	43	45	41	35	40	42	44
ALL NIPPON AIRWAYS	NH	31	28	31	30	31	30	31	31	27	31	29	0
ALLEGRO AIR	LL	3	3	13	0	13	15	44	37	18	18	11	0
AMERICAN TRANS AIR	TZ	34	42	51	46	24	17	17	16	6	0	0	21
AMERICA WEST	HP	0	0	0	0	0	0	0	0	0	0	0	0
AMERICAN	AA	937	852	974	936	995	1,025	1,093	1,091	953	813	719	752
ATLANTIC COAST/UNITED EXPRESS	DH	0	0	0	0	0	0	0	0	0	0	0	0
AUSTRIAN AIR	OS	15	0	16	29	31	30	31	31	25	18	0	0
BRITISH AIRWAYS	BA	61	55	62	60	61	60	62	62	44	62	60	60
CANADA INTERNATIONAL	CP	247	218	180	0	0	0	0	0	0	0	0	0
CASINO EXPRESS	XP	0	0	0	0	0	0	0	0	0	0	0	0
COMAIR	OH	0	0	0	0	0	0	0	0	0	0	0	0
CONTINENTAL EXPRESS	IN	0	0	0	0	0	0	0	0	0	0	0	0
CONTINENTAL	CO	0	0	0	0	0	0	0	0	0	0	0	0
DELTA	DL	0	0	0	0	0	0	0	0	0	0	0	0
EL AL	LY	4	5	10	5	7	5	7	3	5	8	10	9
IBERIA	IB	31	27	31	30	31	30	31	31	30	30	30	30
JAPAN AIRLINES	JL	66	65	71	68	68	68	71	70	60	64	52	55
KLM	KL	31	28	31	30	31	30	31	31	26	31	30	31
KOREAN	KE	76	67	0	74	70	63	75	74	59	42	40	44
KUWAIT AIRWAYS	KA	9	8	9	9	9	8	9	9	7	7	5	8
LOT-POLISH	LO	42	39	45	39	53	50	52	53	45	47	24	28
LUFTHANSA	LH	62	56	48	90	91	91	93	92	77	64	60	57
MESA AIRLINES	YV	0	0	0	0	0	0	0	0	0	0	0	0
MEXICANA	MX	245	218	233	223	226	228	247	247	181	216	215	237
NORTHWEST	NW	0	0	0	0	0	0	0	0	0	0	0	0
ROYAL JORDANIAN	RJ	9	8	9	9	9	13	13	14	9	9	9	0
RYAN INTERNATIONAL	II	114	104	129	68	0	0	0	1	1	2	53	87

**Table II-5
Page 2 of 2
O'Hare International Airport
Year 2001 - Monthly Departures by Carrier
International Activity**

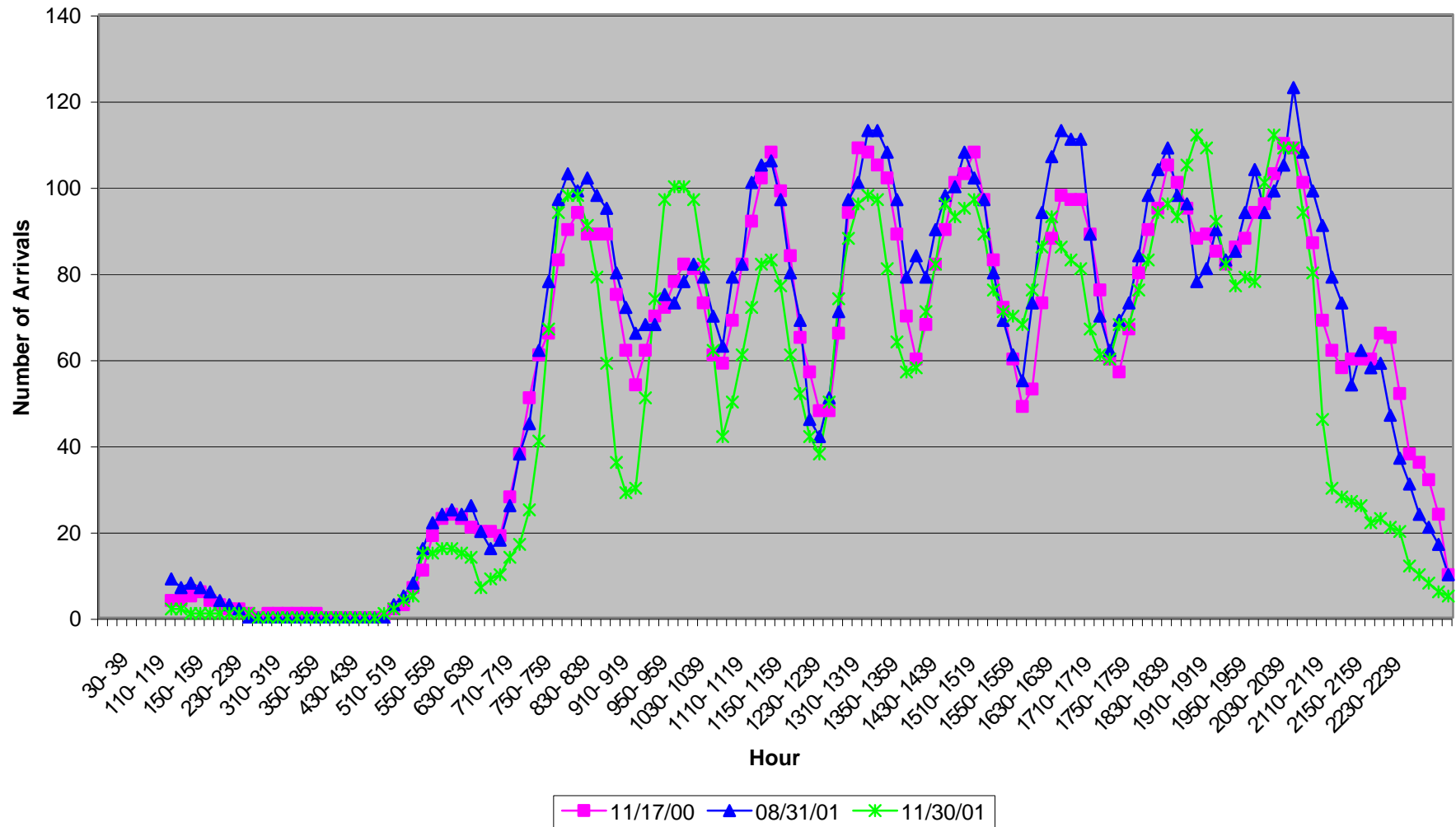
Air Carrier	Designation	JAN (31-DAYS)	FEB (28-DAYS)	MAR (31-DAYS)	APR (30-DAYS)	MAY (31-DAYS)	JUNE (30-DAYS)	JULY (31-DAYS)	AUG (31-DAYS)	SEPT (30-DAYS)	OCT (31-DAYS)	NOV (30-DAYS)	DEC (31-DAYS)
SABENA	SN	31	28	30	30	31	30	31	31	23	30	0	0
SCANDINAVIAN	SK	61	55	61	60	61	59	62	62	50	62	59	54
SPIRIT AIRLINES	SK	0	0	0	0	0	0	0	0	0	0	0	0
SWISSAIR	SR	31	28	0	29	31	30	31	31	26	29	30	31
TAROM	RO	7	5	0	0	0	0	0	0	0	0	0	0
TRANS WORLD AIRLINES	TW	0	0	0	0	0	0	0	0	0	0	0	0
TRANSMERIDIAN	22	43	43	50	54	75	58	44	33	22	20	3	0
TURKISH AIRLINES	TK	22	20	22	22	21	24	26	27	20	13	13	13
U.S. AIR	AL	0	0	0	0	0	0	0	1	0	0	0	0
UNITED	UA	699	658	771	760	794	720	726	711	534	567	639	659
VIRGIN ATLANTIC	VA	29	28	31	29	31	30	30	31	26	1	0	0
CHAMPION AIR	MG	0	0	5	2	0	2	0	0	0	0	0	1
SUN COUNTRY	SY	0	0	0	0	0	0	0	0	7	13	12	0
NATIONAL AIR	N7	0	0	0	0	0	0	0	0	0	0	0	0
NORTH AMERICAN AIRLINES	NA	0	0	0	0	0	0	0	0	0	0	0	0
SINGAPORE PASSENGER AIRLINES	SA	0	0	0	0	0	0	0	13	0	13	13	13
BRITISH MIDLAND	BD	0	0	0	0	0	0	0	30	26	30	30	30
OMNI AIR INTERNATIONAL	OI	0	0	0	0	0	0	0	0	0	3	0	0
TOTAL		3,639	3,299	3,572	3,568	3,739	3,641	3,829	3,814	3,002	2,947	2,883	2,947
Average Daily Departures		117	118	115	119	121	121	124	123	100	95	96	95

N/A: Not Available

Peak Month (All Activity)

Peak Month (Individual Carrier)

**Exhibit II-1
O'Hare International Airport - Arrivals
November 17, 2000, August 31, 2001, and November 30, 2001, Sum of Previous Hour**



***PRELIMINARY DRAFT
FOR DISCUSSION PURPOSES ONLY***

Exhibit II-2 presents a graphical depiction of hourly departures at the Airport for the same three days described above. As with the daily arrival patterns, from November 2000 to November 2001, a significant decrease in the departure peaks in the early morning and late evening hours was experienced. In addition, a more pronounced departure peak has emerged in the late-morning hours. The number of peak hour departures, as summarized below, has increased:

November 17, 2000	-	approximately 118 departures per hour
August 31, 2001	-	approximately 118 departures per hour
November 30, 2001	-	approximately 120 departures per hour

Exhibit II-3 presents a graphical depiction of total hourly aircraft operations for the Airport during the three days described above. As noted above for arrival and departure activities, from November 2000 to November 2001, a significant decrease in the early morning and late evening arrival and departure peaks were experienced. The total aircraft operations during the peak hour for the three days analyzed are summarized below:

November 17, 2000	-	approximately 198 operations per hour
August 31, 2001	-	approximately 208 operations per hour
November 30, 2001	-	approximately 196 operations per hour

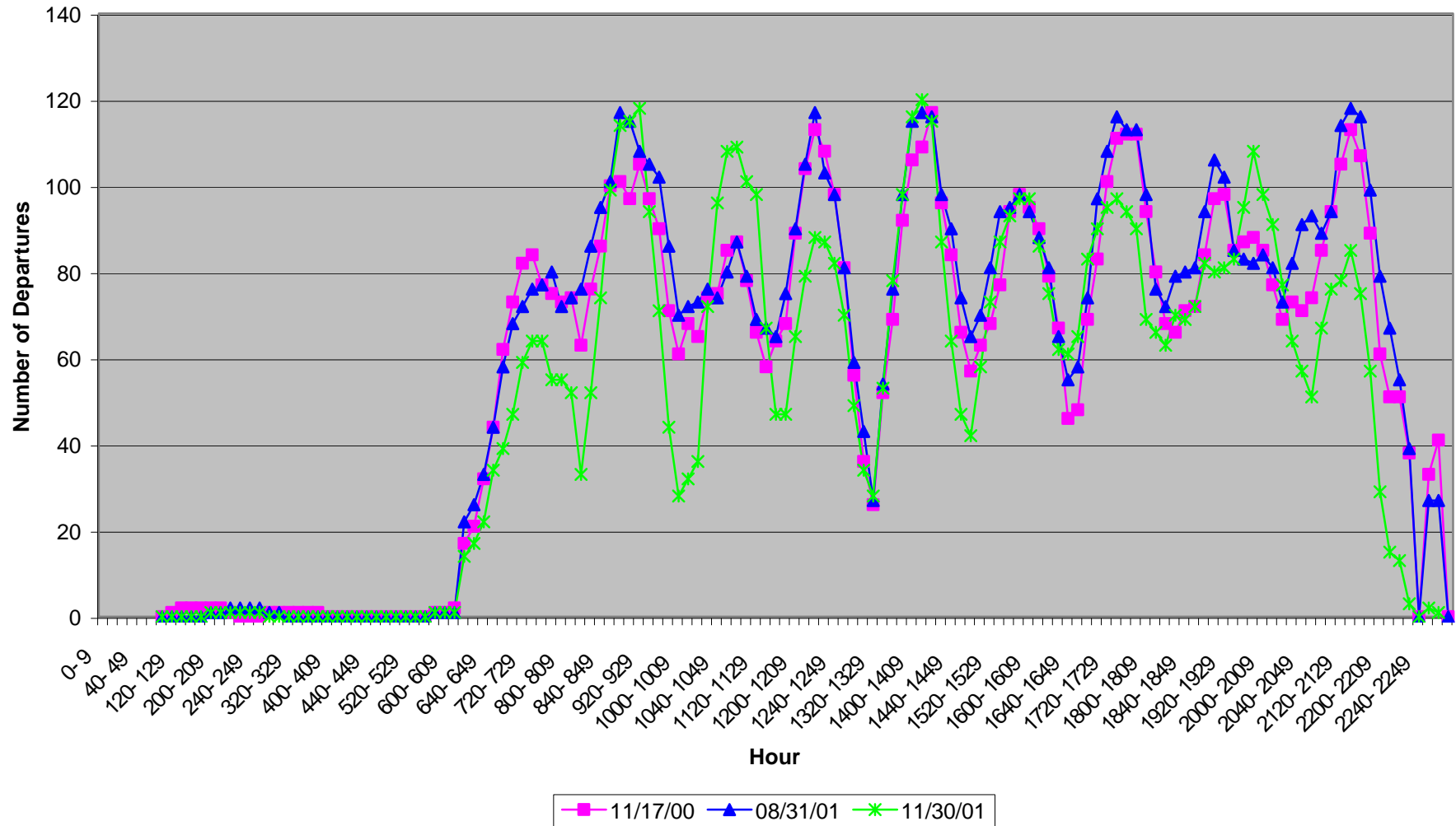
Exhibit II-4 through **II-15** provide total hourly activity patterns for American Airlines (AA) and United Airlines (UA) for the three time periods identified above. In addition, the hourly patterns for January 25, 2002 have also been included to verify whether confirmed changes to each airlines flight schedules have occurred since November 2001. The activity reflected by these flight schedules pertain to AA and UA only (i.e., they do not include activity by other carriers from the One World or Star Alliances).

Exhibit II-16 through **II-21** present the same information for AA and UA in a slightly different format, whereby the flight schedules for the four time periods are depicted by each carrier.

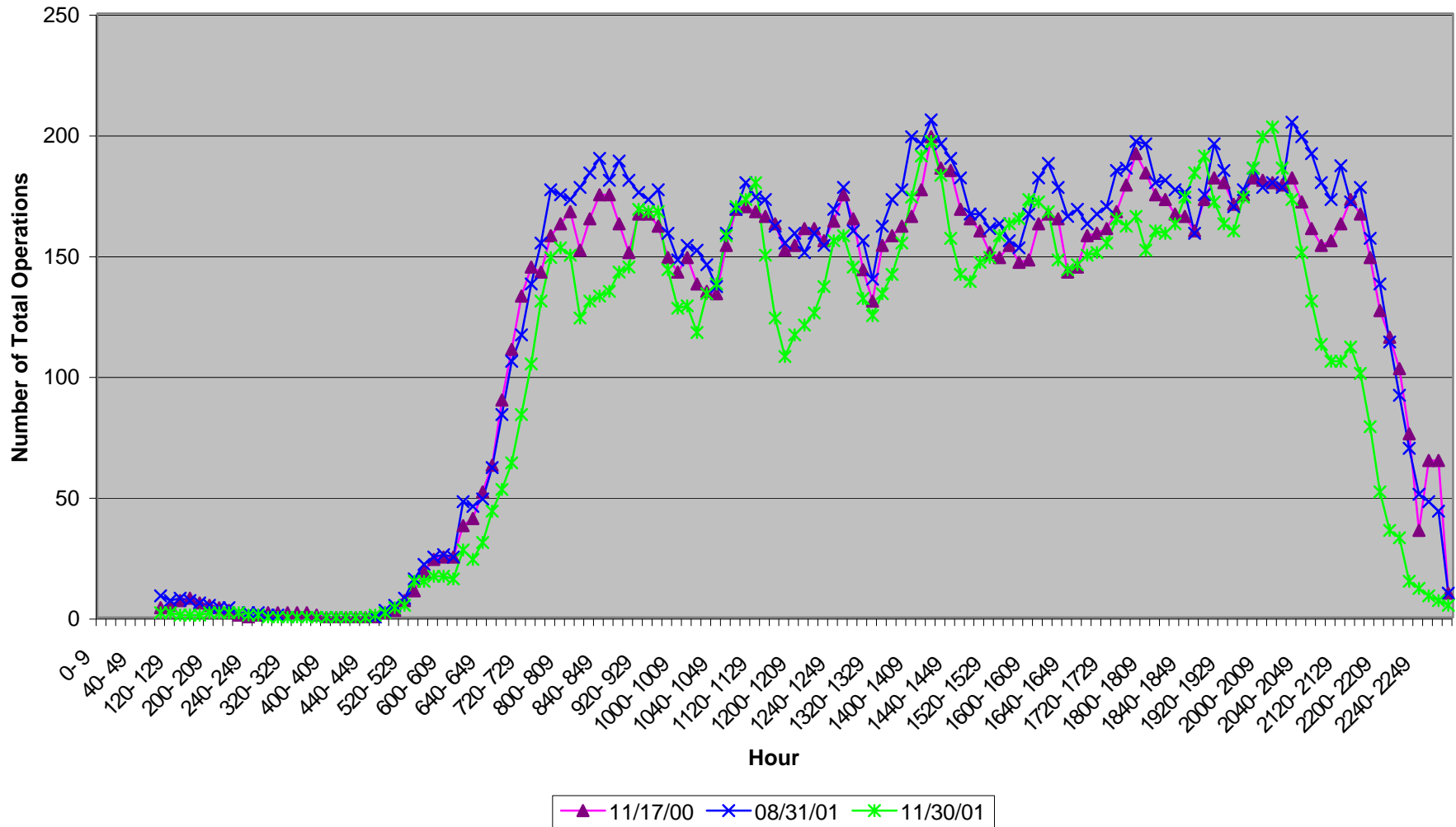
Air Carrier Fleet Mix

Although the September 11 events resulted in an immediate and abrupt decrease in air travel demand that, in due time, is expected to rebound, the effects of these events on airline fleet mixes appear more permanent. In fact, it can be argued that the effects of the September 11 events have accelerated a foreseeable transition in aircraft fleet mixes whereby the older, noisier, and shorter-range aircraft would be substituted by the modern, quieter, and in some instances, longer-range aircraft being manufactured by Boeing and Airbus Industries. In the case of many airlines, near-term reductions in air travel demand have allowed for the decommissioning of older aircraft prior to the delivery of new/replacement aircraft. The following paragraphs summarize the analyzation of historic data that support these apparent trends.

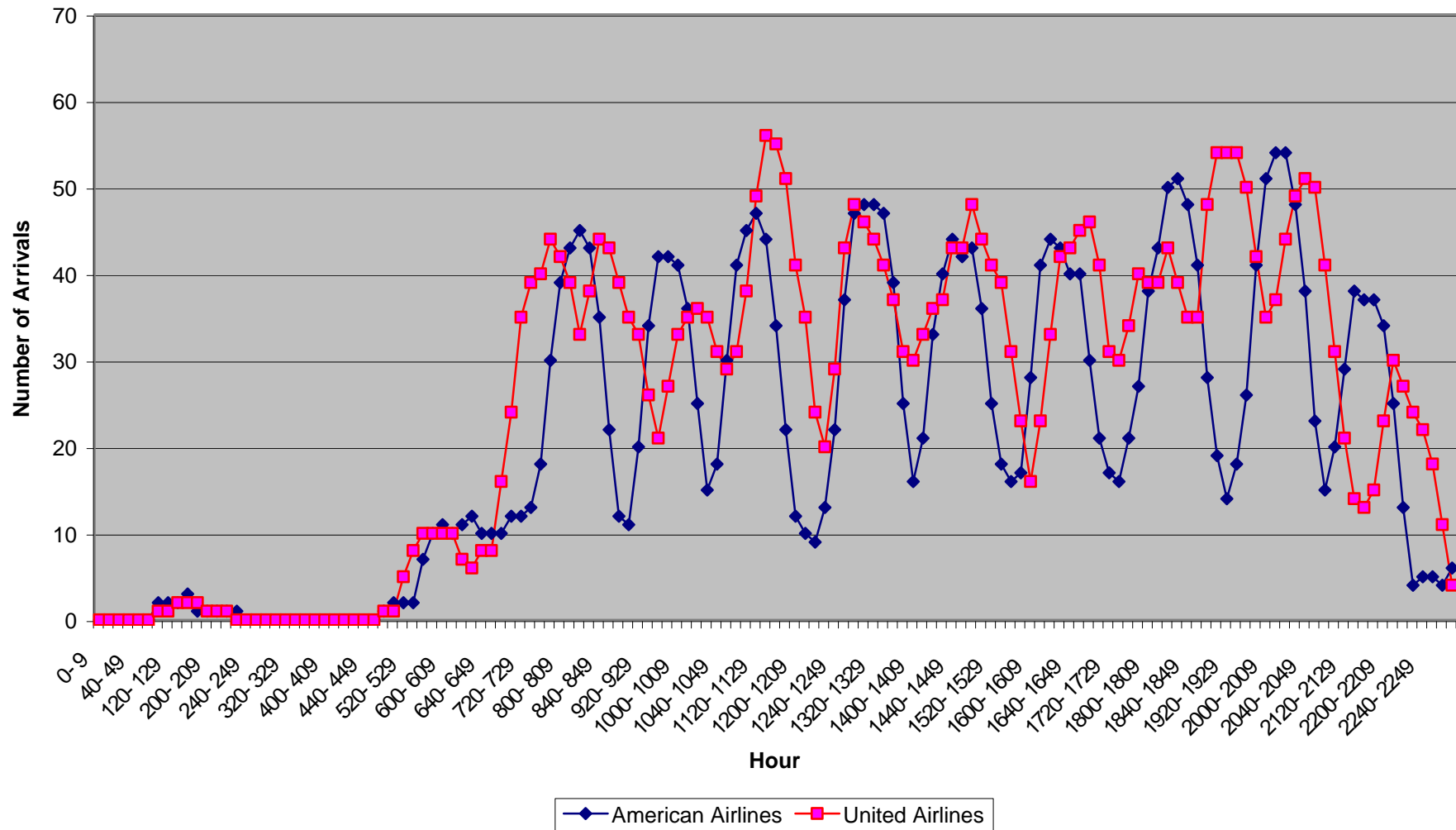
**Exhibit II-2
O'Hare International Airport - Departures
November 17, 2000, August 31, 2001, and November 30, 2001, Sum of Previous Hour**



**Exhibit II-3
O'Hare International Airport - Total Operations
November 17, 2000, August 31, 2001, and November 30, 2001, Sum of Previous Hour**



**Exhibit II-4
O'Hare International Airport - Arrivals
November 17, 2000, Sum of Previous Hour**



**Exhibit II-5
O'Hare International Airport - Arrivals
August 31, 2001, Sum of Previous Hour**

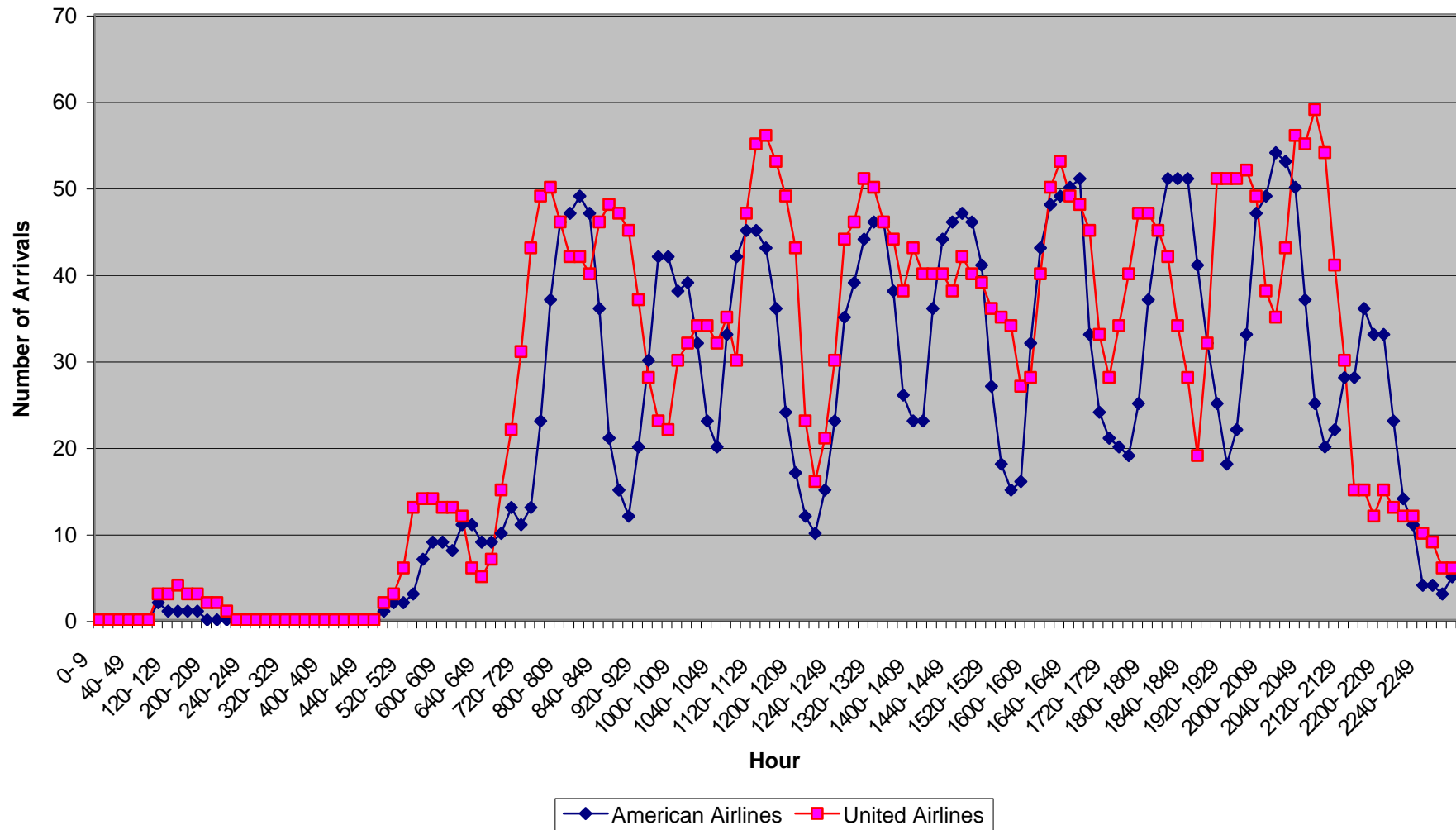
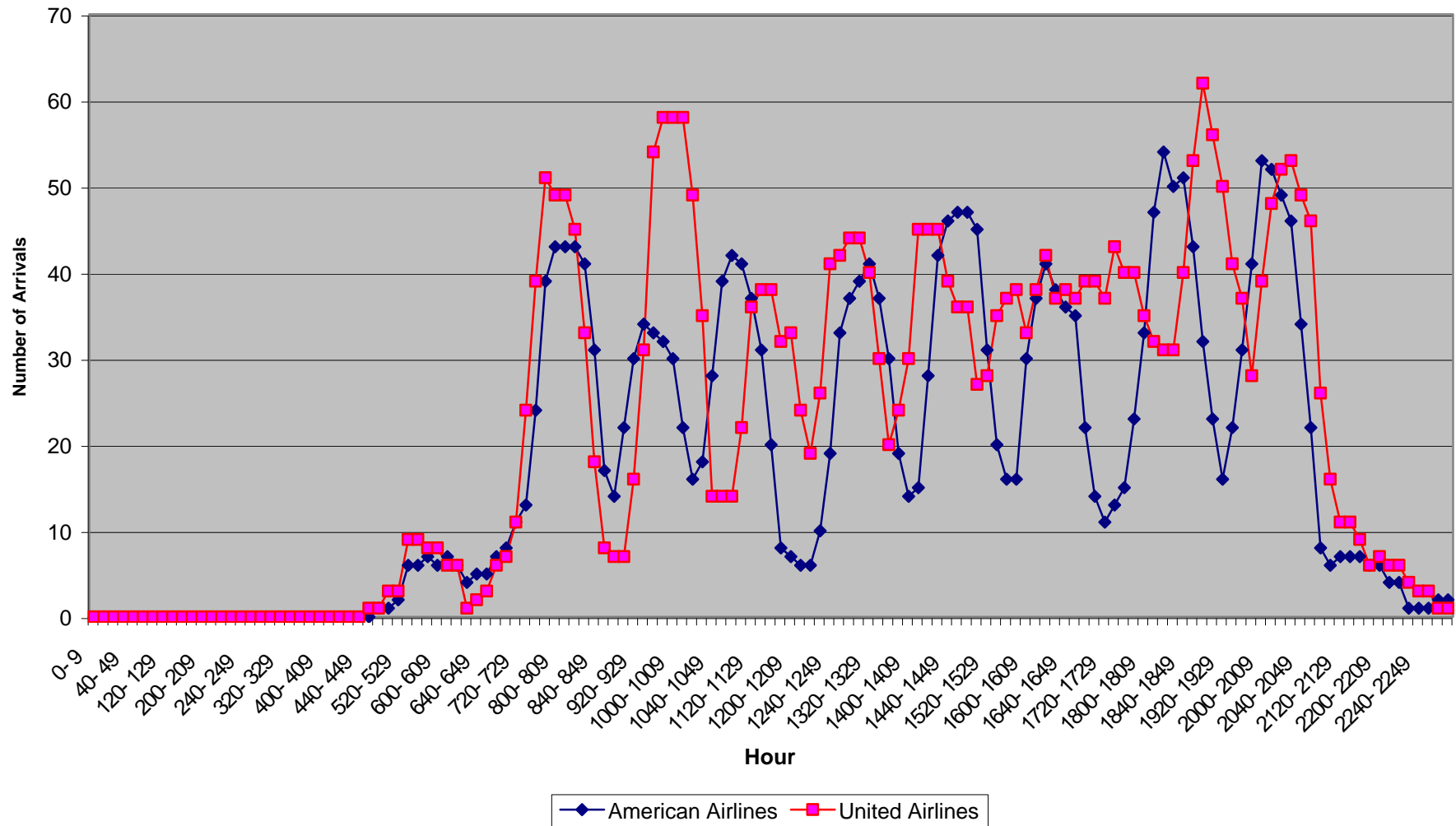
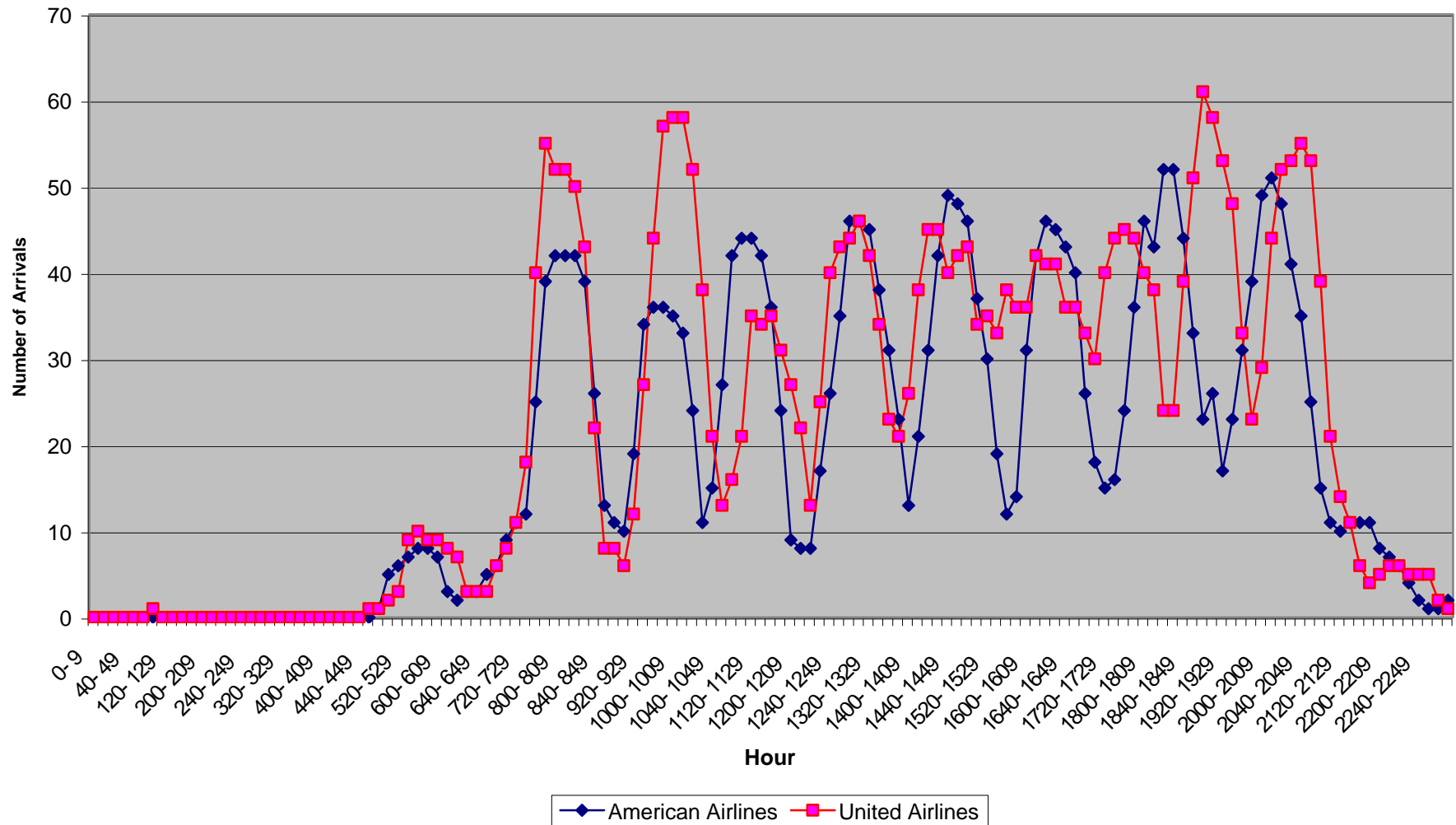


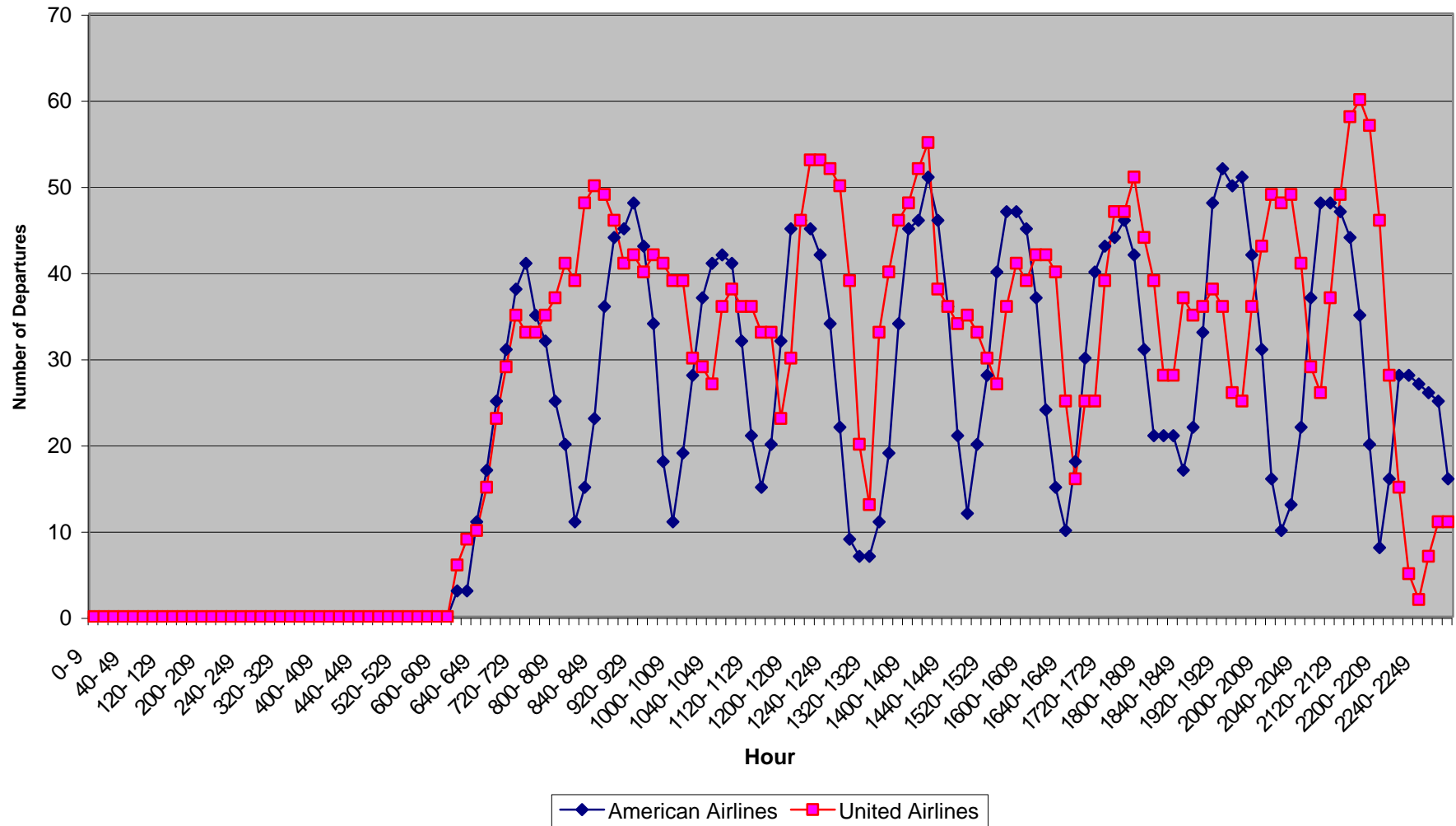
Exhibit II-6
O'Hare International Airport - Arrivals
November 30, 2001, Sum of Previous Hours



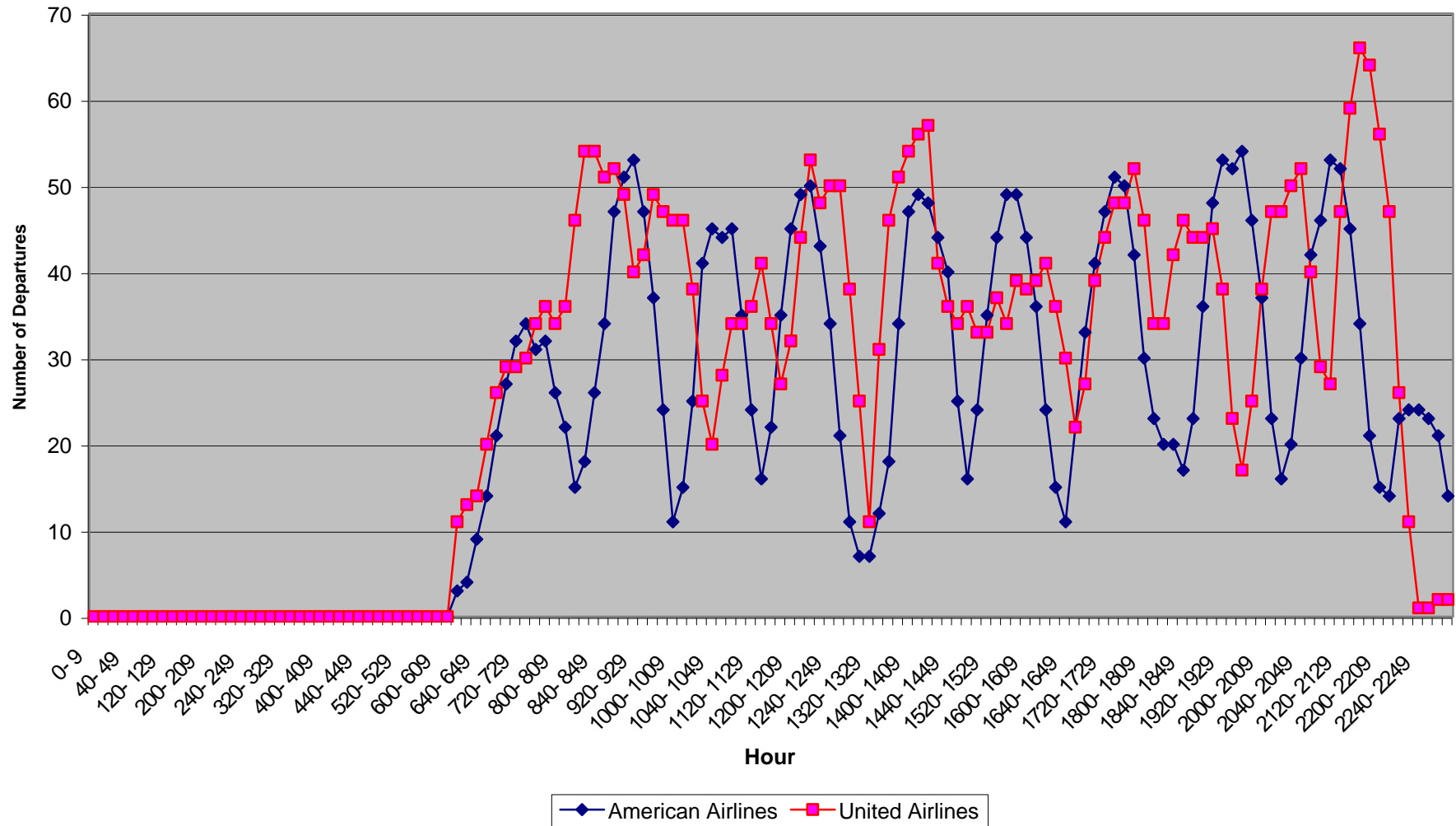
**Exhibit II-7
O'Hare International Airport - Arrivals
January 25, 2002, Sum of Previous Hour**



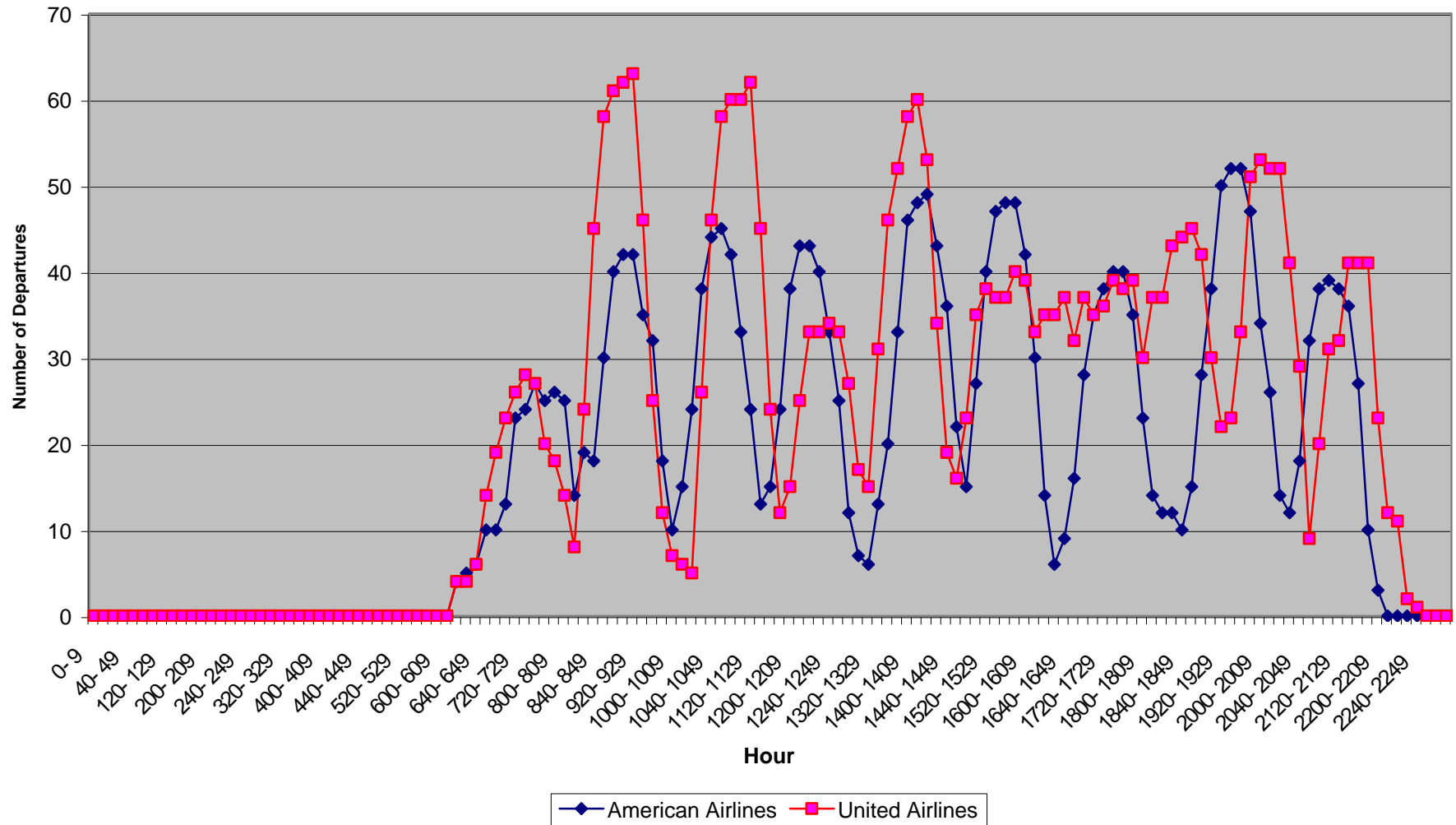
**Exhibit II-8
O'Hare International Airport - Departures
November 17, 2000, Sum of Previous Hour**



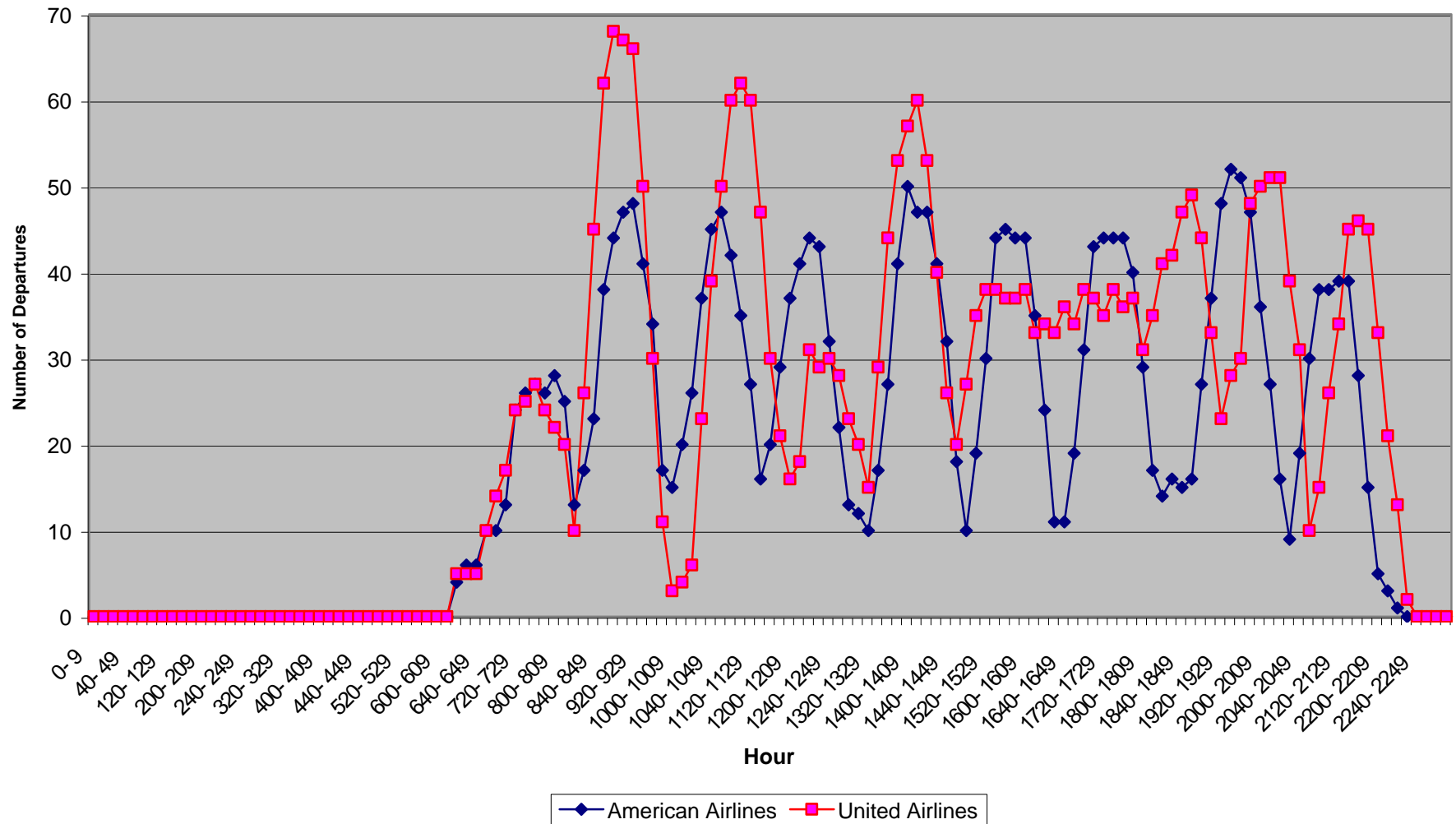
**Exhibit II-9
O'Hare International Airport - Departures
August 8, 2001, Sum of Previous Hour**



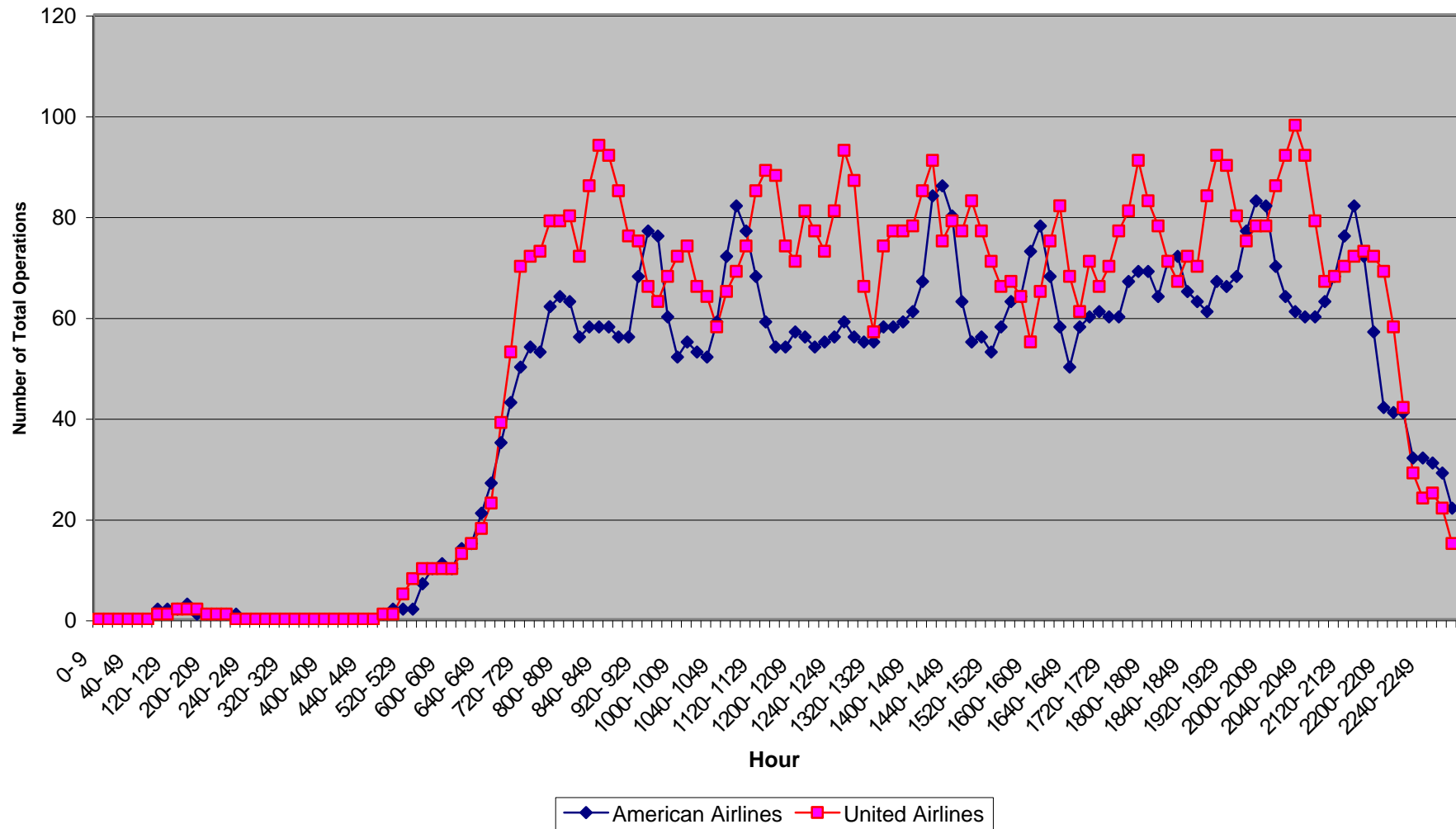
**Exhibit II-10
O'Hare International Airport - Departures
November 30, 2001, Sum of Previous Hour**



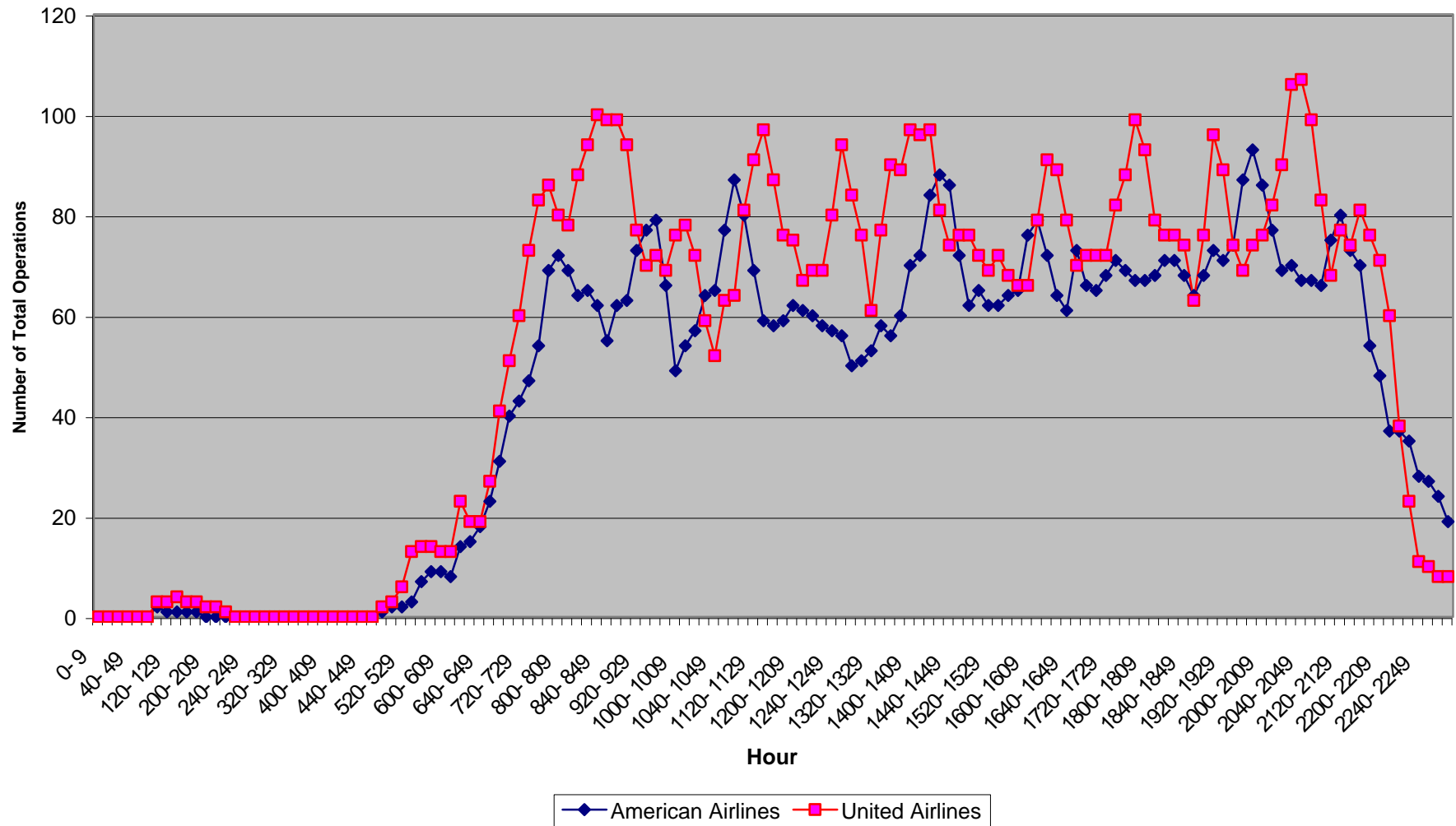
**Exhibit II-11
O'Hare International Airport - Departures
January 25, 2002, Sum of Previous Hour**



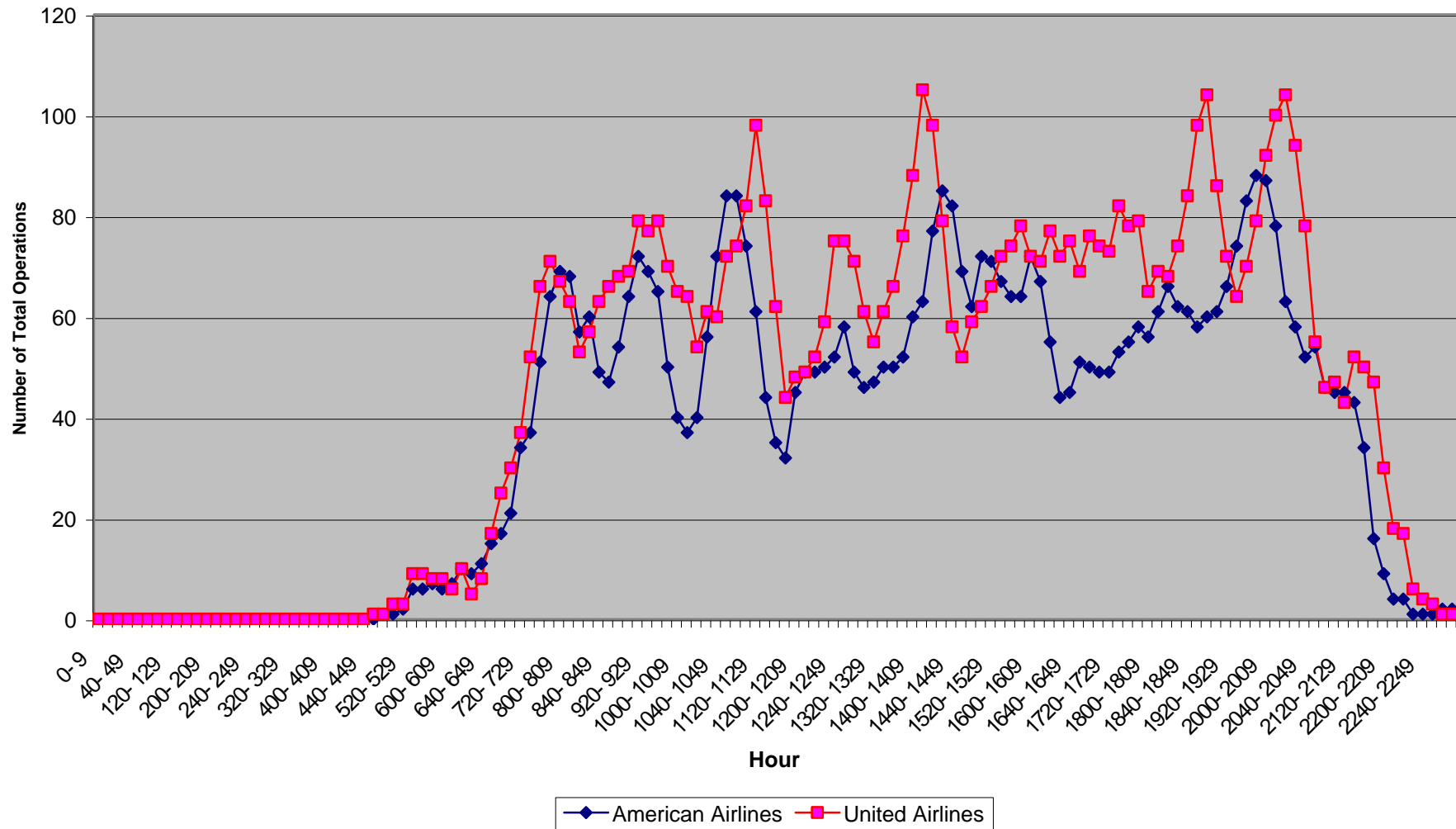
**Exhibit II-12
O'Hare International Airport - Total Operations
November 17, 2000, Sum of Previous Hour**



**Exhibit II-13
O'Hare International Airport - Total Operations
August 31, 2001, Sum of Previous Hour**



**Exhibit II-14
O'Hare International Airport - Total Operations
November 30, 2001, Sum of Previous Hour**



**Exhibit II-15
O'Hare International Airport - Total Operations
January 25, 2002, Sum of Previous Hour**

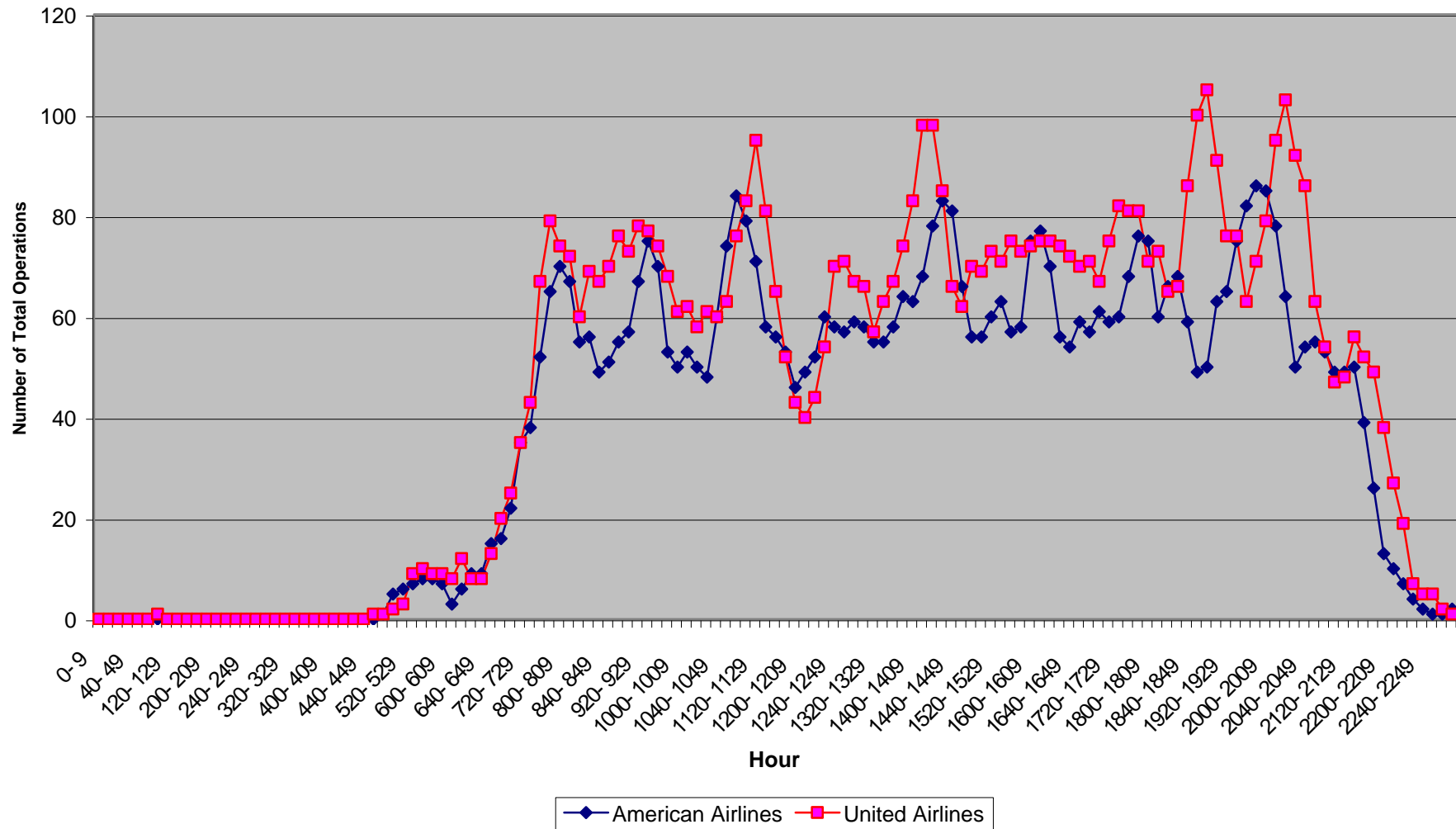
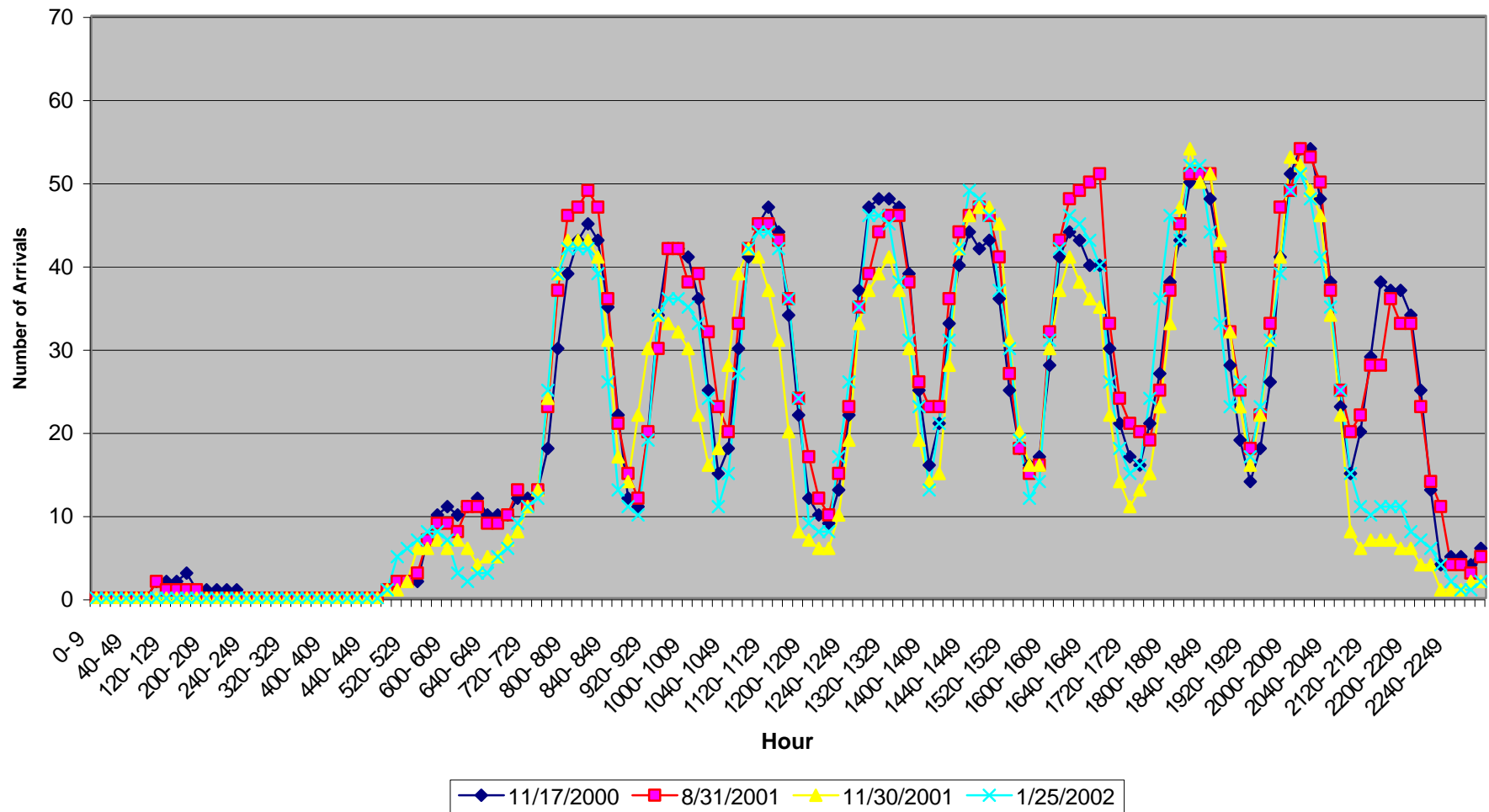


Exhibit II-16
O'Hare International Airport - American Airlines Arrivals
November 17, 2000, August 31, 2001, November 30, 2001, January 25, 2002,
Sum of Previous Hour



**Exhibit II-17
O'Hare International Airport - United Airlines Arrivals
November 17, 2000, August 31, 2001, November 30, 2001, January 25, 2002,
Sum of Previous Hour**

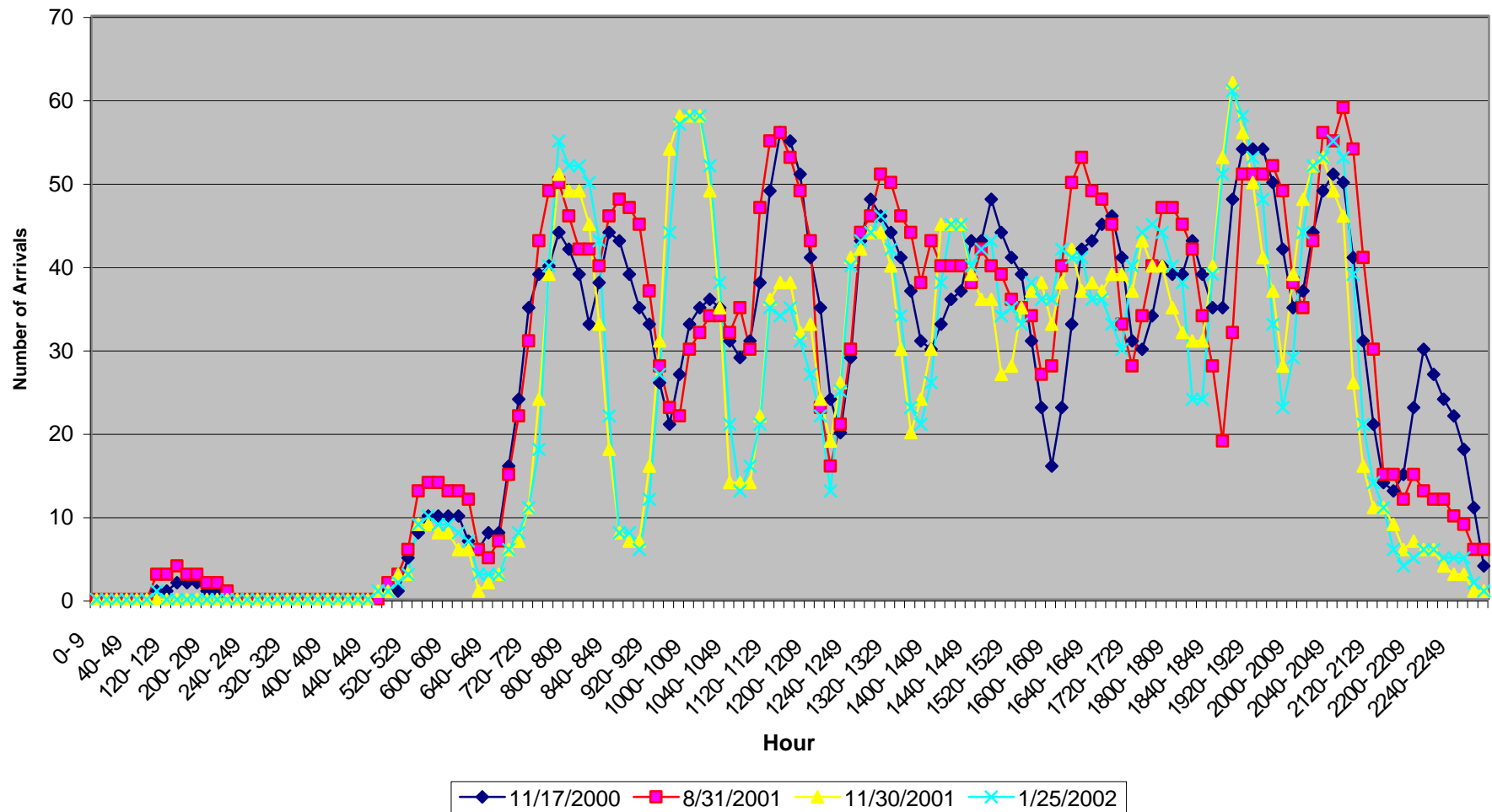


Exhibit II-18
O'Hare International Airport - American Airlines Departures
November 17, 2000, August 31, 2001, November 30, 2001, January 25, 2002,
Sum of Previous Hour

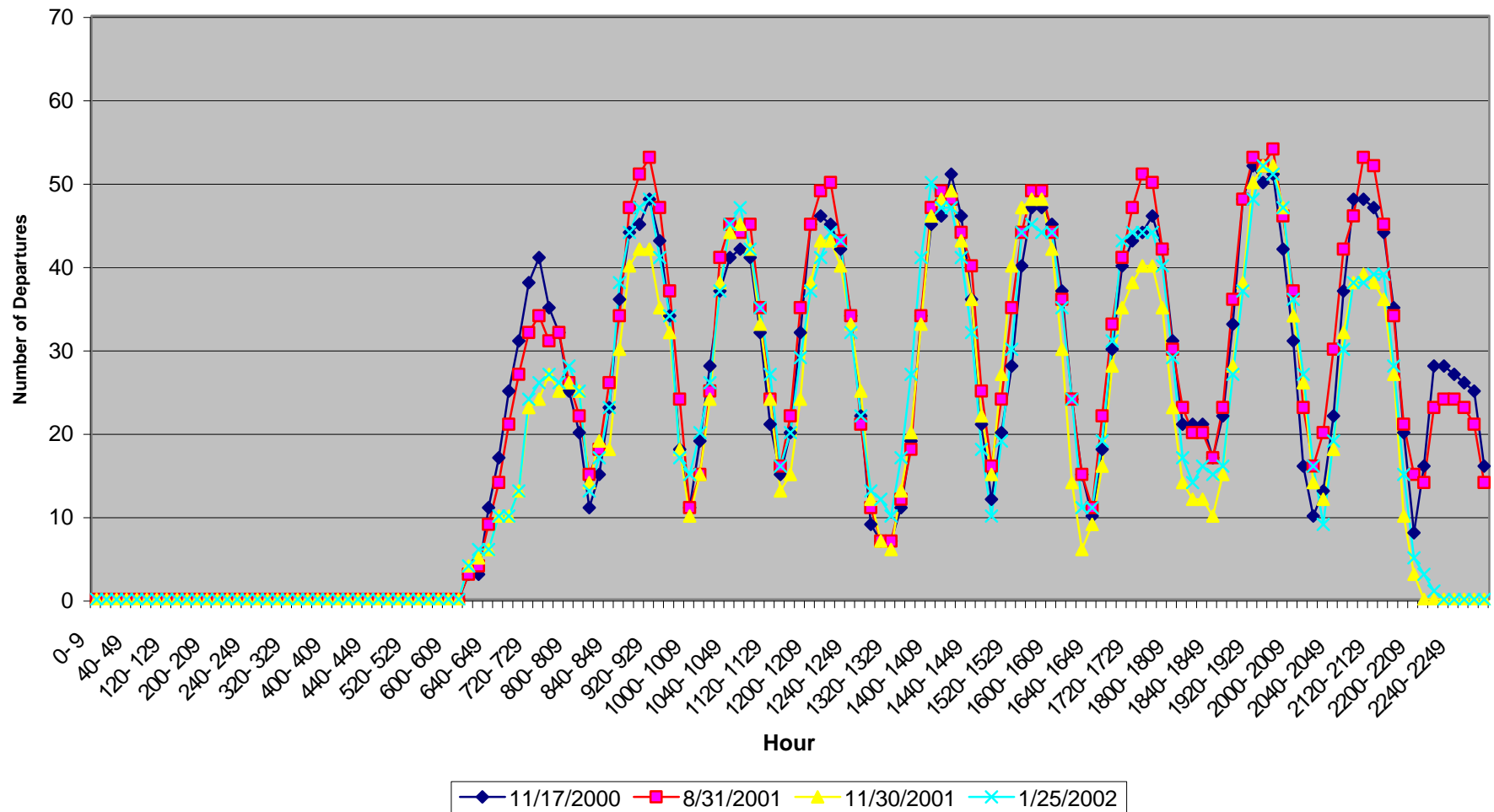


Exhibit II-19
O'Hare International Airport - United Airlines Departures
November 17, 2000, August 31, 2001, November 30, 2001, January 25, 2002,
Sum of Previous Hour

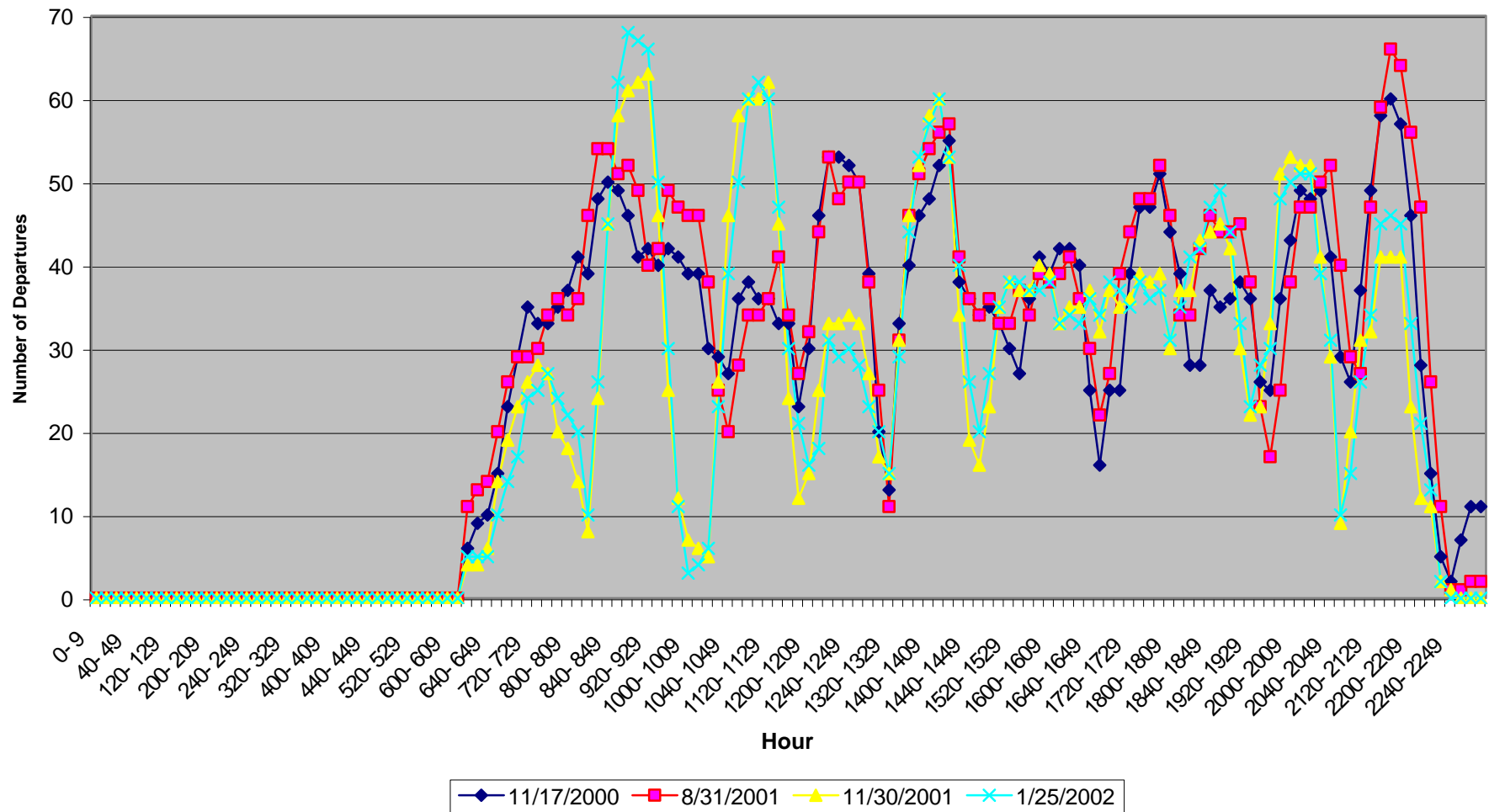


Exhibit II-20
O'Hare International Airport - American Airlines Total Operations
November 17, 2000, August 31, 2001, November 30, 2001, January 25, 2002,
Sum of Previous Hour

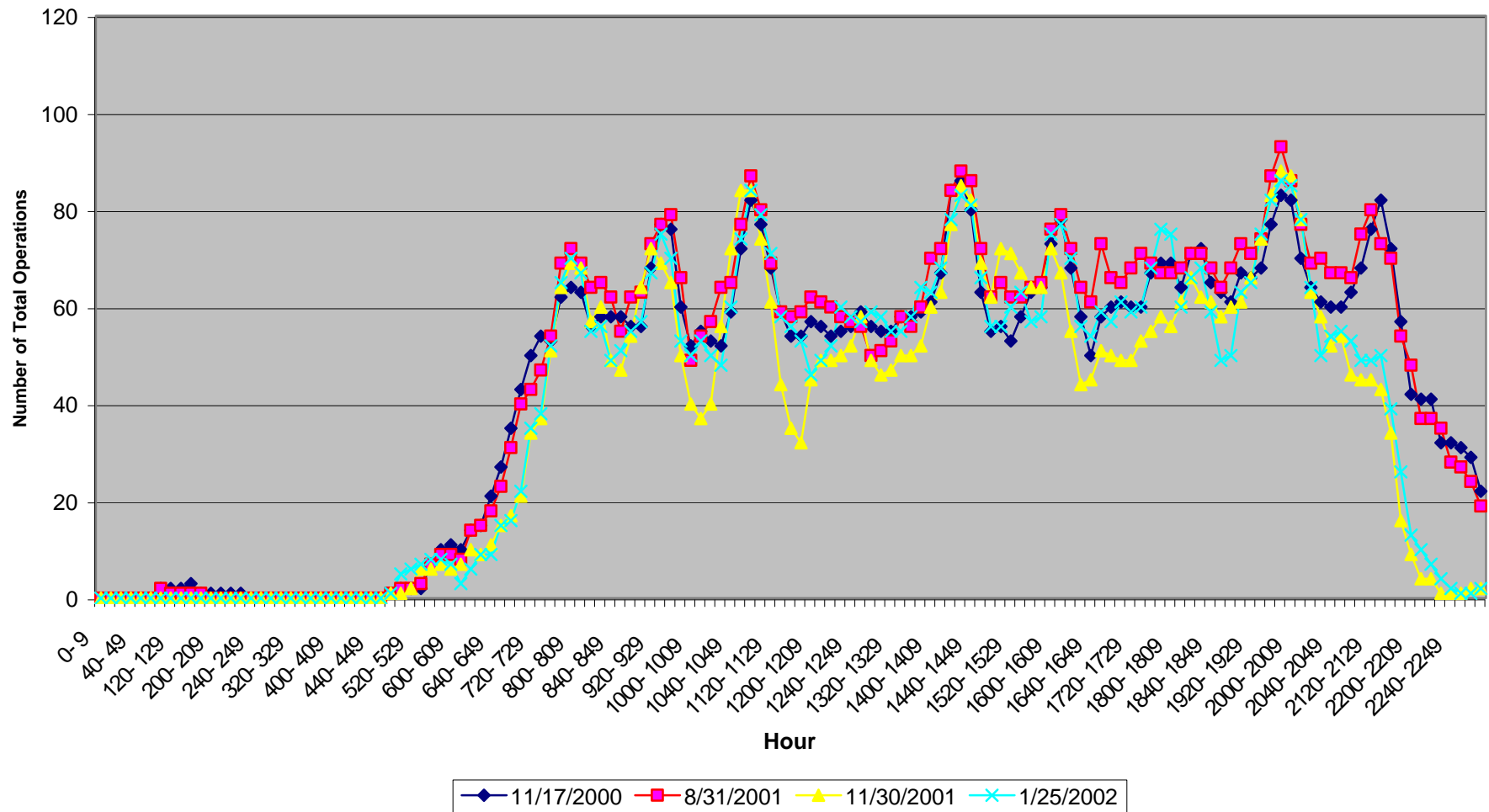
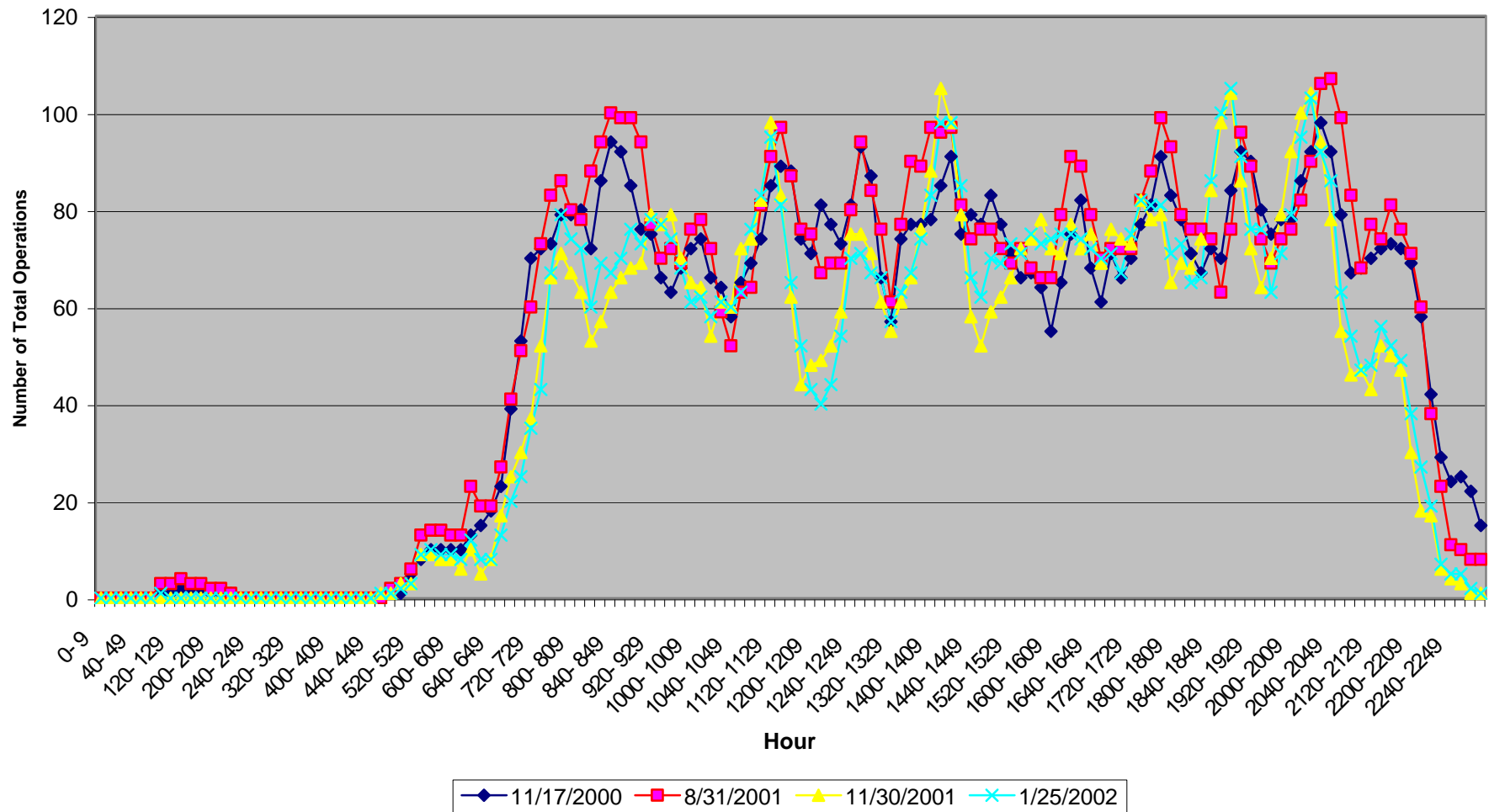


Exhibit II-21
O'Hare International Airport - United Airlines Total Operations
November 17, 2000, August 31, 2001, November 30, 2001, January 25, 2002,
Sum of Previous Hour



***PRELIMINARY DRAFT
FOR DISCUSSION PURPOSES ONLY***

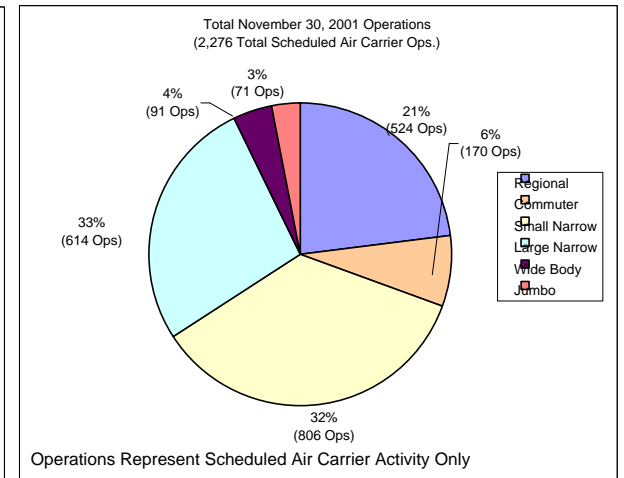
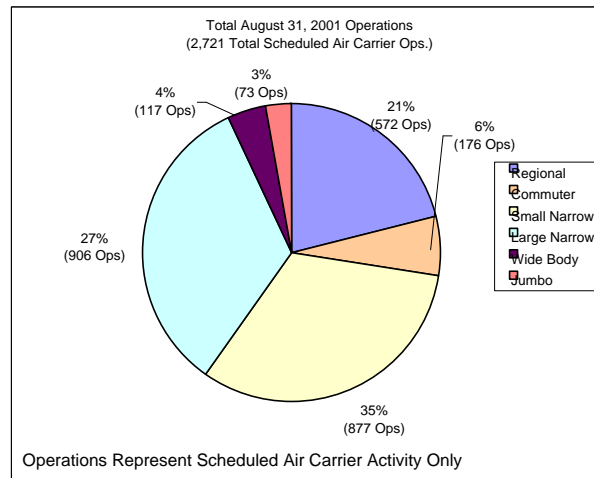
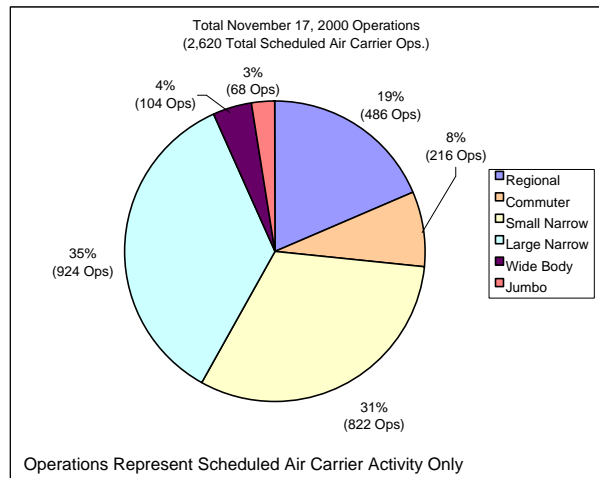
The fleets that supported the airlines schedules for the three sampled days (i.e., November 17, 2000, August 31, 2001, and November 30, 2001) were analyzed. For purposes of this analysis, the aircraft fleets were arbitrarily grouped into five primary categories (taking into consideration seating capacity and seating configuration): Commuter/Regional, Small Narrow Body, Large Narrow Body, Wide Body, and Jumbo aircraft. **Exhibit II-22** provides a graphical depiction of the fleet mix composition for the three sample days using the five aircraft categories identified above. The total number of air carrier operations and the corresponding percentage of total air carrier operations are provided by aircraft category for each of the sample days analyzed. A listing of the representative aircraft for each category is also provided.

As shown in Exhibit II-22, the volume of commuter/regional, large narrow body, and jumbo aircraft activity has remained relatively constant in terms of total daily operations (i.e., within a 10 percent deviation). The volume of small narrow body and wide body aircraft activity, on the other hand, has varied significantly among the three sample days, even though their composition when measured as a percent of total aircraft has been less obvious.

Exhibits II-23 and **II-24** respectively present a more detailed inventory of the small narrow body and large narrow body aircraft fleet mix for the three sampled days. As expected, a significant decrease in the number of B727-200, B737-200, and to a lesser extent, F100 aircraft was evident in the post-September 11 airline schedule. In addition, the volume of MD80 aircraft was nearly 25 percent lower in November 30, 2001 compared to August 31, 2001 and December 1, 2000. However, the overall volume (i.e., 329 daily operations) is still rather significant. This post-September 11 volume of activity for the DC9 can be attributed to the fact that some carriers use the MD80 as a primary aircraft for many of their domestic operations. While most of these airlines show plans for substituting the MD80 fleet with newer aircraft in the future, the decommissioning of the MD80 fleet is greatly dependent on the purchase and delivery of aircraft that the airlines presently have “on-order.” During the same period, increased aircraft operations in the A319, A320, and somewhat surprisingly, in the B737-300 were also experienced. Smaller fluctuations in operations by other aircraft within this fleet category were also observed within three sampled days.

Similarly, **Exhibit II-25** presents a detailed inventory of the wide body aircraft fleet mix for the three sampled days. As expected, a significant decrease in the number of B767-300 and DC10 aircraft was evident in the post-September 11 airline schedule.

**Exhibit II-22
O'Hare International Airport - Air Carrier Fleet Mix Comparisons
November 17, 2000, August 31, 2001, and November 30, 2001**



Regional Jet

CANADAIIR REGIONAL JET
EMBRAER RJ 135\140\145
EMBRAER RJ135
EMBRAER RJ140

Commuter

BEECHCRAFT 1900 (ALL SERIES)
BRITISH AEROSPACE 146 (ALL SERIES)
DORNIER 328
EMBRAER 120 BRASILIA

Small Narrow Body

AIRBUS INDUSTRIE A319
AIRBUS INDUSTRIE A320
BOEING 727-200
BOEING 737 (SERIES 200\200C)
BOEING 737-300\400\500
FOKKER 100
MCDONNELL DOUGLAS DC9
MCDONNELL DOUGLAS MD-90

Large Narrow Body

BOEING 737-700\800\900
BOEING 757 (ALL SERIES)
MCDONNELL DOUGLAS MD-80

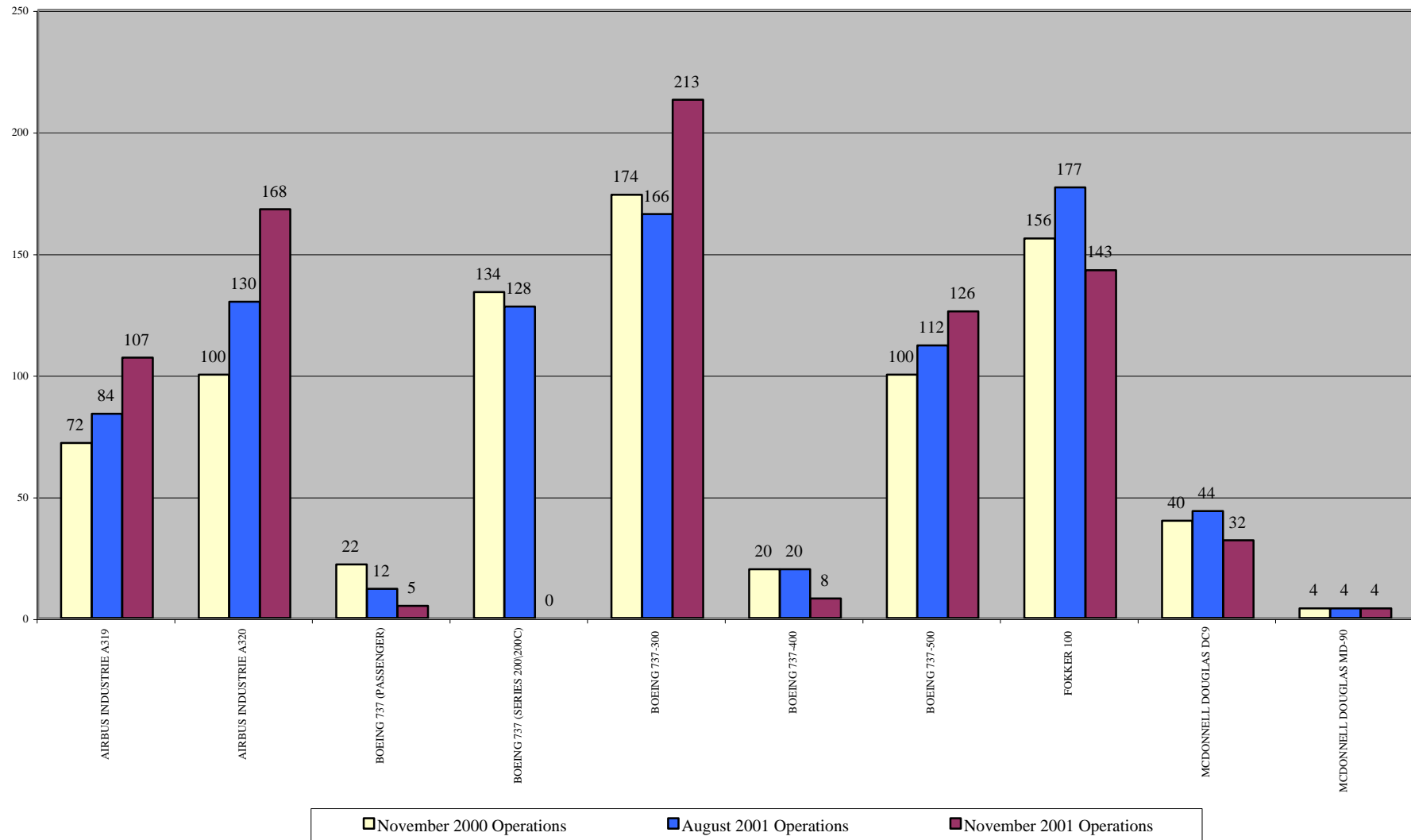
Wide Body

AIRBUS INDUSTRIE A300-600C
AIRBUS INDUSTRIE A310 (ALL SERIES)
AIRBUS INDUSTRIE A330
AIRBUS INDUSTRIE A330-200
AIRBUS INDUSTRIE A330-300
AIRBUS INDUSTRIE A340
AIRBUS INDUSTRIE A342
AIRBUS INDUSTRIE A343
BOEING 767 (ALL SERIES)
BOEING 767-200\200ER
BOEING 767-300\300ER
MCDONNELL DOUGLAS DC-10
MCDONNELL DOUGLAS MD-11

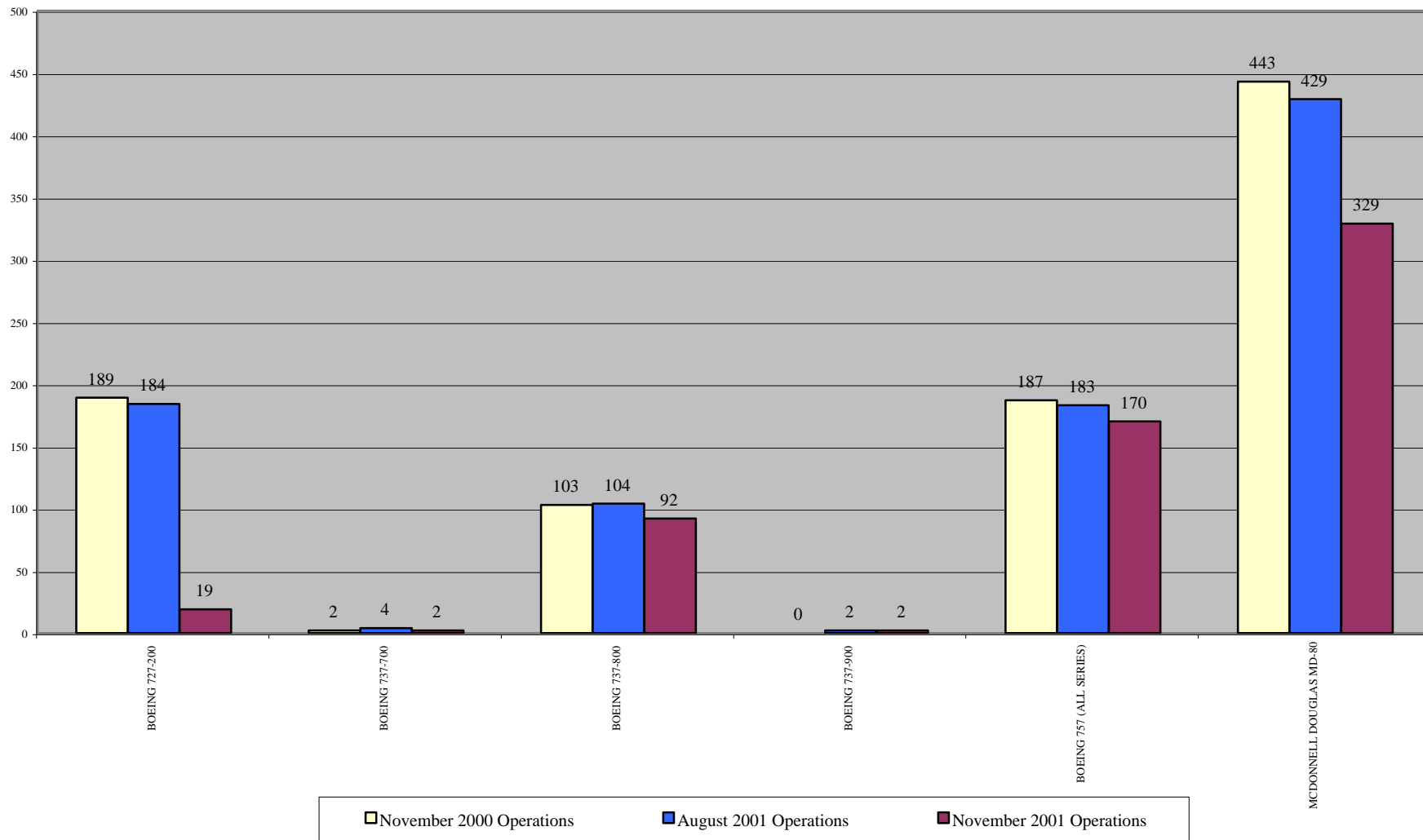
Jumbo

BOEING 747 (ALL SERIES)
BOEING 777

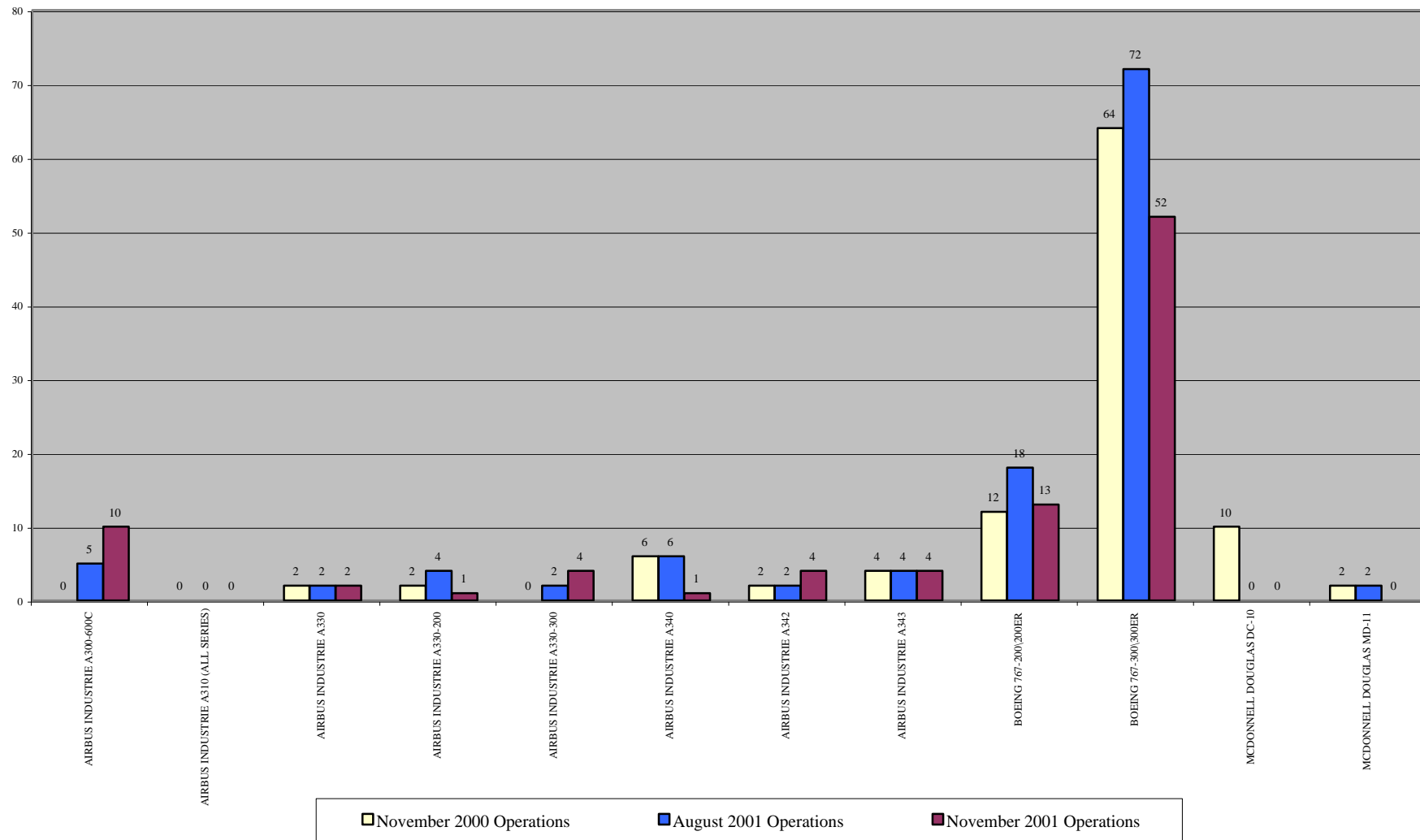
**Exhibit II-23
O'Hare International Airport
Small Narrow Body Fleet Mix Breakdown (Scheduled Air Carrier Activity Only)**



**Exhibit II-24
O'Hare International Airport
Large Narrow Body Fleet Mix Breakdown (Scheduled Air Carrier Activity Only)**



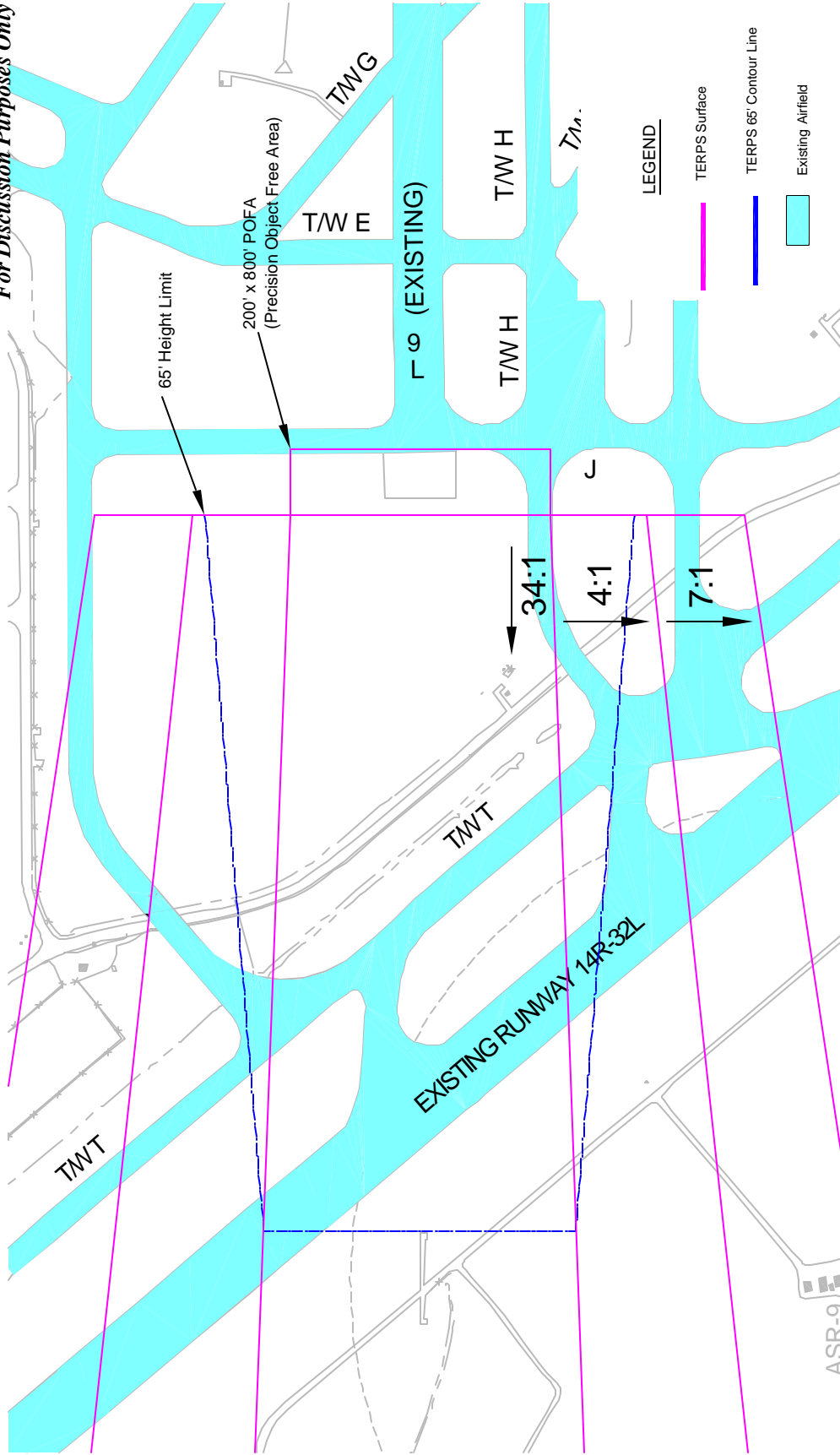
**Exhibit II-25
O'Hare International Airport
Wide Body Fleet Mix Breakdown (Scheduled Air Carrier Activity Only)**



III. AIRFIELD LAYOUT OPTIONS

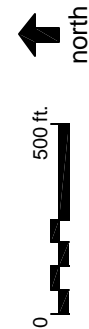
1. This section addresses issues related to the application/use of perimeter taxiways, the potential need for dual parallel taxiways north of the existing terminal area, and the need for additional departure queuing areas to serve the remote runways. There was also additional discussion pertaining to the use of the inboard runways for landings.
2. **Exhibit III-1** illustrates the applicable TERPS approach surface as applied to existing Runway 9L. The surface criteria presented corresponds to FAA Order 8260.36A, “Civil Utilization of MLS”, which is the new criteria to be followed for new, as well as existing, ILS installations. It should be noted that this criteria is less restrictive than the standard TERPS approach criteria. As shown on Exhibit III-1, the surface has an inner, relatively narrow surface, rising 34:1 with side slopes of 4:1 followed by a 7:1 slope. These rising surfaces begin 200 feet in advance of the approach end of the runway corresponding to a 200 – by – 800-foot rectangular area defined as the Precision Object Free Area (POFA). A 65-foot high contour line is additionally illustrated as part of the surface description corresponding to the tail height of a B - 747. A review of the 65-foot contour line shows a B - 747 size aircraft on Runway 14L-32R or its parallel taxiway would penetrate the prescribed surfaces for existing Runway 9L. This blue line helps illustrate the general location requirements for a taxiway that would allow unrestricted taxi by B-747 and smaller aircraft under the approach of a runway. Similar spatial relationship would apply to other runway ends. Runway 14R-32L serves to provide a reference point for this discussion.
3. Two alternatives were pursued regarding adding dual parallel taxiways north of the existing terminal area. One alternative maintains the existing Group V taxiway and adds a new Group VI taxiway. The other alternative provides two new Group VI taxiways. **Exhibit III-2** illustrates the existing Group V taxiway and adds a new Group VI taxiway immediately to the north. A review of Exhibit III-2 shows the required spacing between the two taxiways is 300 feet. The net effect of adding this single new Group VI taxiway is that the two new runways are moved 537 feet further to the north with a corresponding reduction in separation between Runway 9C-27C and Runway 9L-27R to 5,163 feet. To the degree the existing land and hold short distance of 6,449 feet for Runway 22R landings holding short of existing Runway 9L-27R is important to maintain, the graphic illustrates how Runway 4L-22R might be repositioned to maintain this capability. It should be noted that the repositioned Runway 4L-22R is shown as a true parallel to Runway 4R-22L.
4. **Exhibit III-3** illustrates the changes brought about by providing dual Group VI taxiways north of the existing terminal area. For the purposes of this assessment, the existing service road adjacent to the existing taxiway is considered as the fixed object to which required clearances must be maintained. The process of adding 193 feet of clearance off the service road and the required spacing between Group VI taxiways of 324 feet narrows the spacing between Runway 9C-27C and Runway 9L-27R to 5,106 feet. The graphic also illustrates repositioning of Runway 4L-22R to the degree the land and hold short distance is important to maintain.

O'Hare International Airport
Preliminary Draft
For Discussion Purposes Only



Source: FAA Order 8260.36A "Civil Utilization of MLS", (New ILS Criteria)
 Prepared by: Ricondo & Associates Inc.

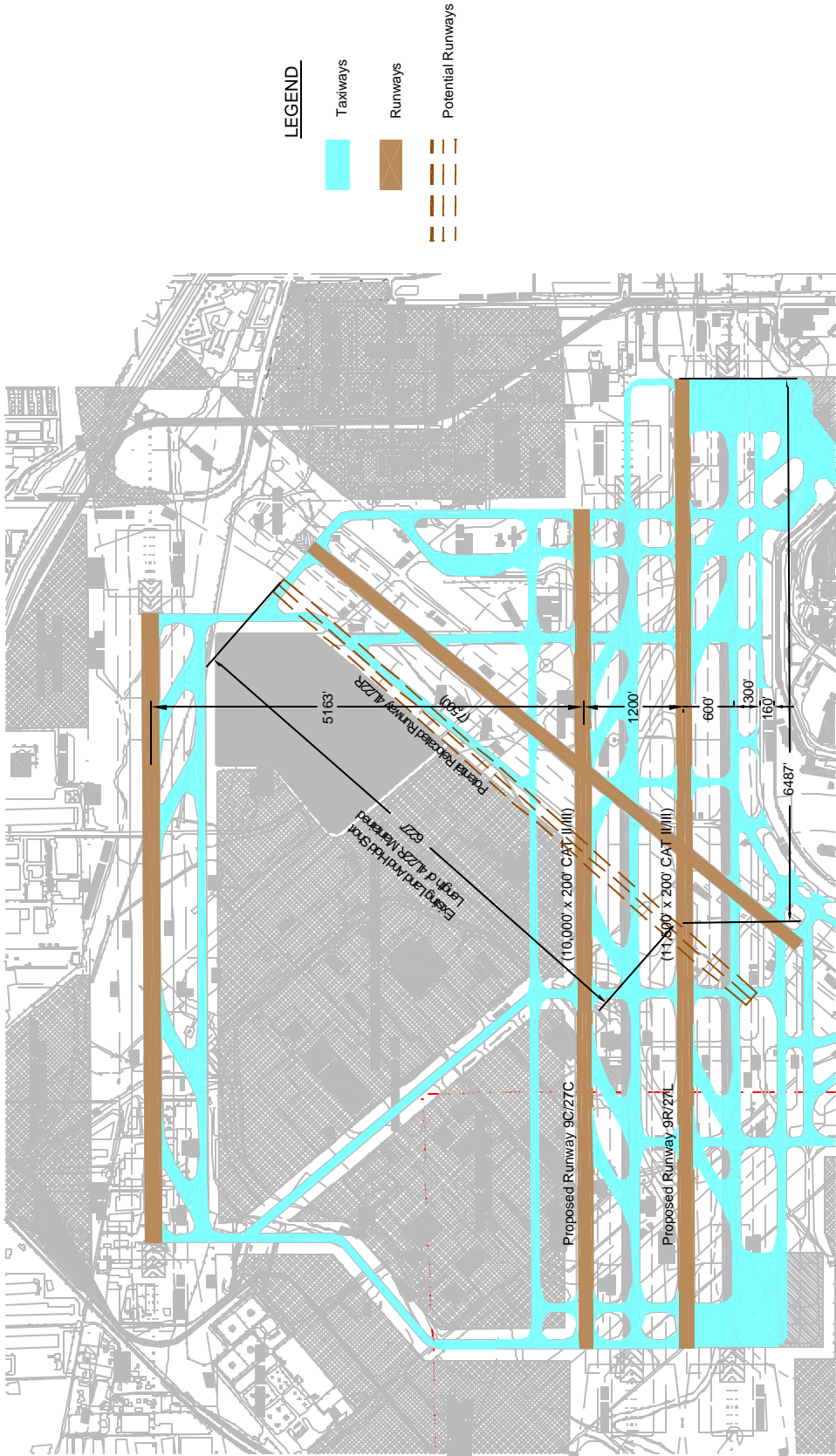
Exhibit III-1



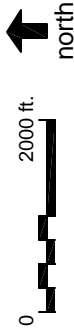
TERPS Approach Surface
Existing Runway 9 L

ORD-ALP-Existing -Loop.dwg

February 19, 2002



Source: Ricondo and Associates, Inc.
 Prepared by: Ricondo and Associates, Inc.

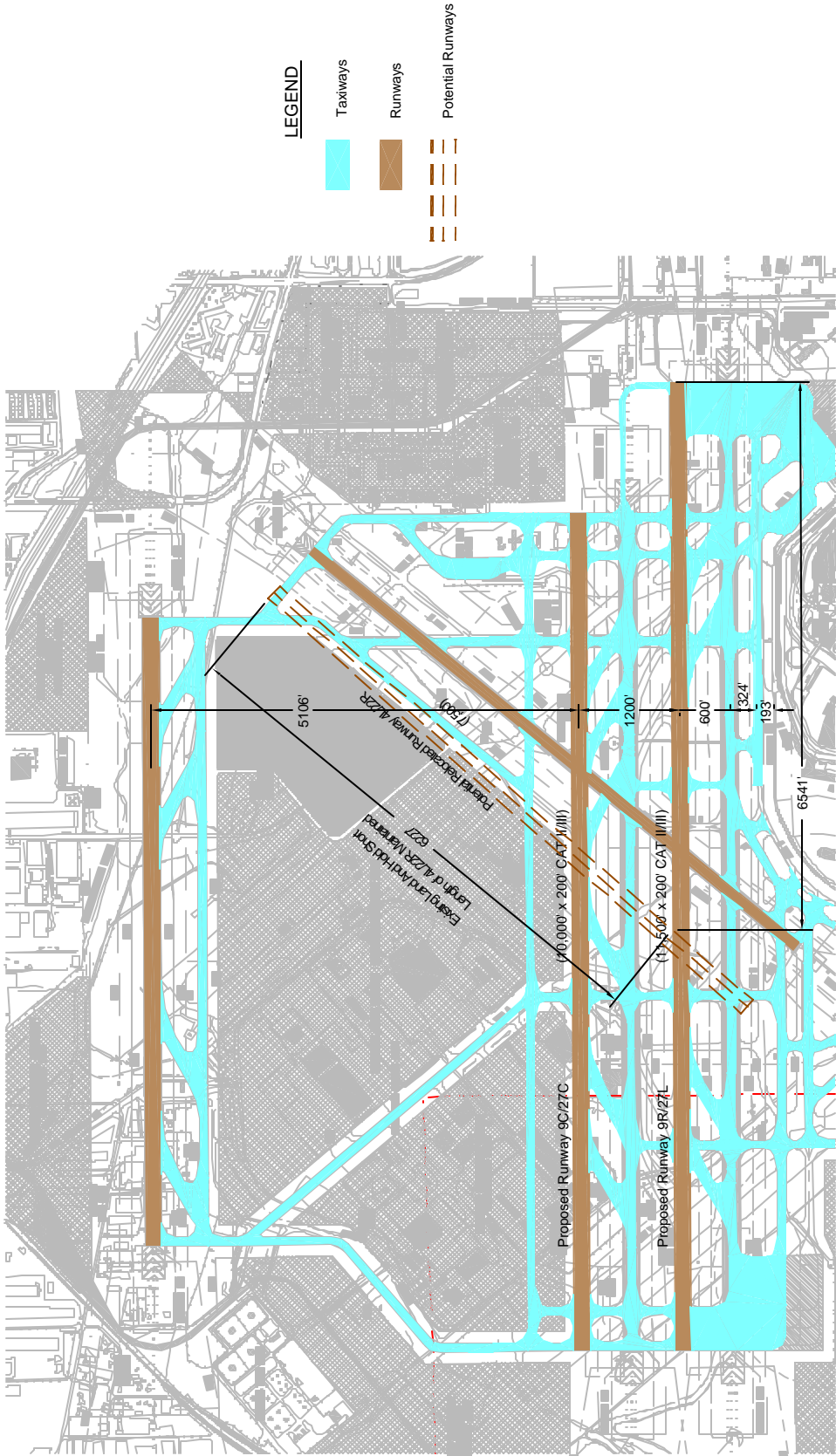


ORD-ALP-Future - Dual Txyw Group V.dwg

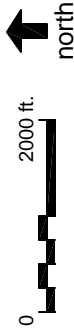
Exhibit III-2

Dual Terminal Area Taxiways
Group V and Group VI

February 19, 2002



Source: Ricondo and Associates, Inc.
 Prepared by: Ricondo and Associates, Inc.



ORD-ALP-Future - Dual Txyw Group VI.dwg

Exhibit III-3

Dual Terminal Area Taxiways
Both Group VI

February 19, 2002

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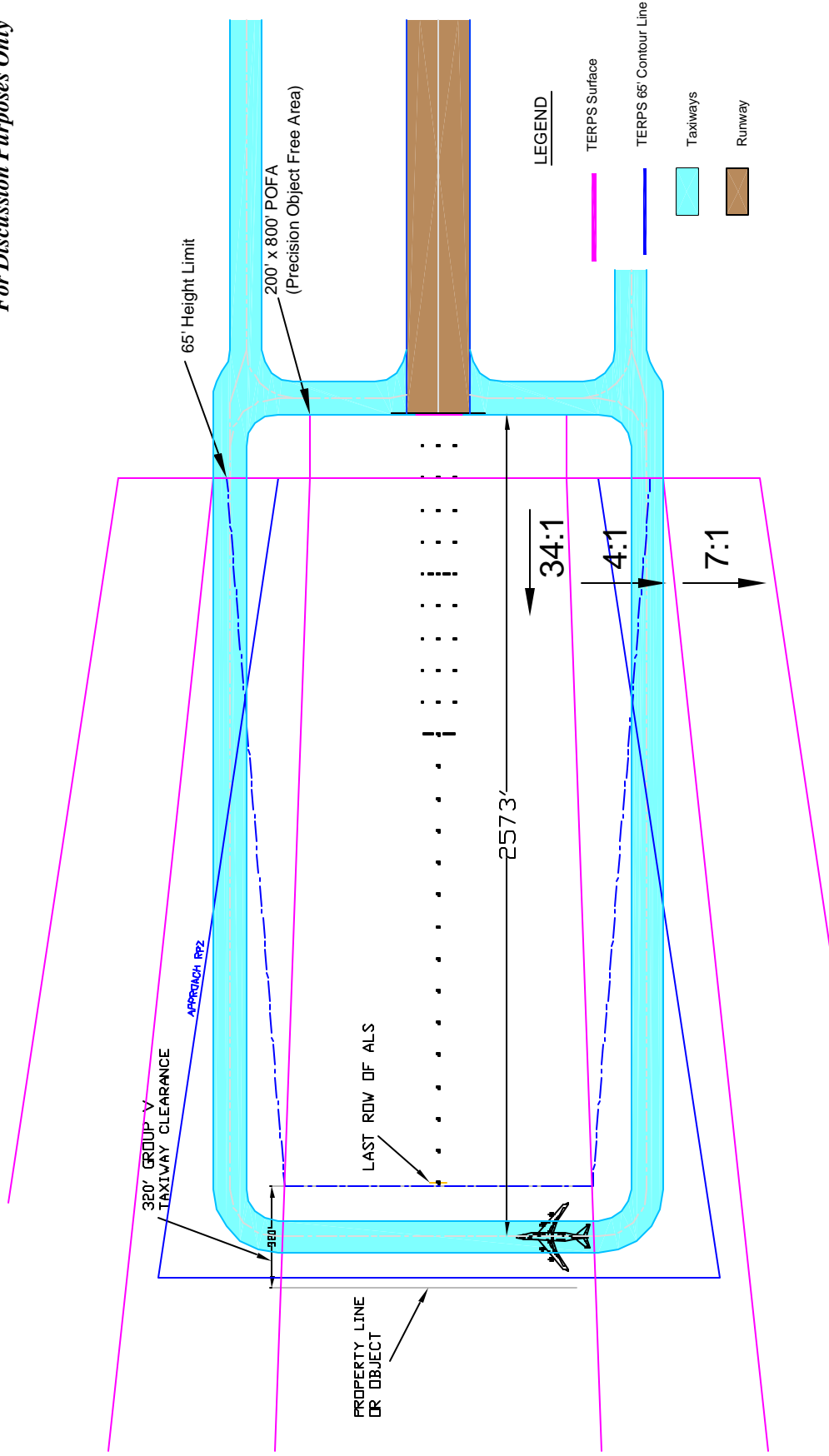
5. The airfield concept presented thus far has been centered around the general upgrading of the airfield to FAA design Group VI standards, specifically 200-foot wide runways, 100-foot wide taxiways, and a separation between a runway and parallel taxiway centerline of 600 feet. Brought about by discussions surrounding runway crossings and the need to efficiently move aircraft from the outboard runways across the inboard runway to the terminal area, an analysis was performed to address the capability of a 600-foot long crossover taxiway to stage aircraft for a runway crossing. A review of ground operational traffic patterns at airports such as Newark International and Dallas-Ft. Worth International suggests the desirability of maintaining multiple runway crossing points with the ability to stage an aircraft for crossing on the “cross-over” taxiways while not impacting traffic on the associated parallel taxiway (It is important to note that options to avoid runway crossings through the use of perimeter taxiways and/or other operational techniques are also being examined.). **Table III-1** provides a summary of the resulting dimensional requirements based on various aircraft sizes.
6. A review of Table III-1 shows a 600-foot runway to parallel taxiway separation allows for the holding capability on the cross-over to accommodate up to an MD-80-size aircraft, or smaller, while maintaining the capability for a B-747-400 to taxi behind. Similarly, with an A -380 (Group VI) aircraft on the parallel taxiway, the capability to stage an aircraft is reduced to a B-737-500 size aircraft or smaller. Additionally, with a 600-foot spacing, the maximum size aircraft that can be both on the parallel and on the cross-over is a B-767-300 size aircraft. In order for a B-747-400 to taxi and stage for a runway crossing, a separation between centerlines of 678 feet would be required.
7. In advance of pursuing Perimeter Taxiway Alternatives, it is important to establish agreement on the type of operational capability/flexibility that is desired, i.e., taxi in the approach of a landing runway without impact and/or taxi around the departure end of a runway without impact to departures. **Exhibit III-4** presents a proposed planning criteria for the consideration of perimeter taxiways that protects for both the aforementioned arrival and departure capability. The parameters set forth in this exhibit are subsequently used in the definition of perimeter taxiway alternatives discussed later.
8. A review of Exhibit III-4 shows the centerline of the cross-over taxiway element is 2,573 feet from the end of the runway. This distance was established to provide for a 40:1 departure surface over the tail height of a B-747 (64 feet-4 inches). A taxiway at this distance off the runway end additionally satisfies Group V taxiway clearance from the last light bar of the ALS (either an ALSF-II or a MALSF) that would need to be elevated at a slope of near 50:1 (two degrees is the maximum allowed) and an obstruction for taxi clearance purposes. Vision requirements for an ALS require the pilot to see the entire lighting system from a point ½ degree below the glide slope (i.e., 2 ½ degree slope angle) from a point 1,600 feet in advance of the first light bar. Based on the taxiway location shown in Exhibit III-4, the B-747 tail height at the point of cross-over would not obstruct the lighting system. It should additionally be noted that locating the cross-over taxiway at the location indicated would, for all practical purposes, force the Approach RPZ onto Airport property given the clearance requirements for a Group V taxiway.

Table III-1
Runway to Parallel Taxiway Separation Distance

Aircraft on Parallel Taxiway	A380	B767-300	B747-400	B747-400	B767-300	B747-400	B767-300	B767-300	B747-400	B747-400	A380
Req. Clearance off Centerline (Ft.)	192	119	159	159	119	159	119	119	159	159	192
Aircraft on Crossover	737-500	B767-300	MD-82	2X 737-500	2X A320-200	B747-400	757-200 737-500	2X 737-800	A320-200 737-500	A380	A380
Aircraft Length (Ft.)	102	180	148	224	266	232	277	280	245	254	254
Dist. Hold Line off Rnwy (Ft.)	287										
Runway to Taxiway Dist. (Ft.)	581	586	594	670	672	678	683	686	691	700	733

Notes:
Separation between two aircraft is 20-feet

Source: Ricondo & Associates, Inc. and FAA Advisory Circulars
Prepared by: Ricondo & Associates, Inc.



Source: Ricondo & Associates Inc.
 Prepared by: Ricondo & Associates Inc.



Departure-RPZ-Exhibit.dwg

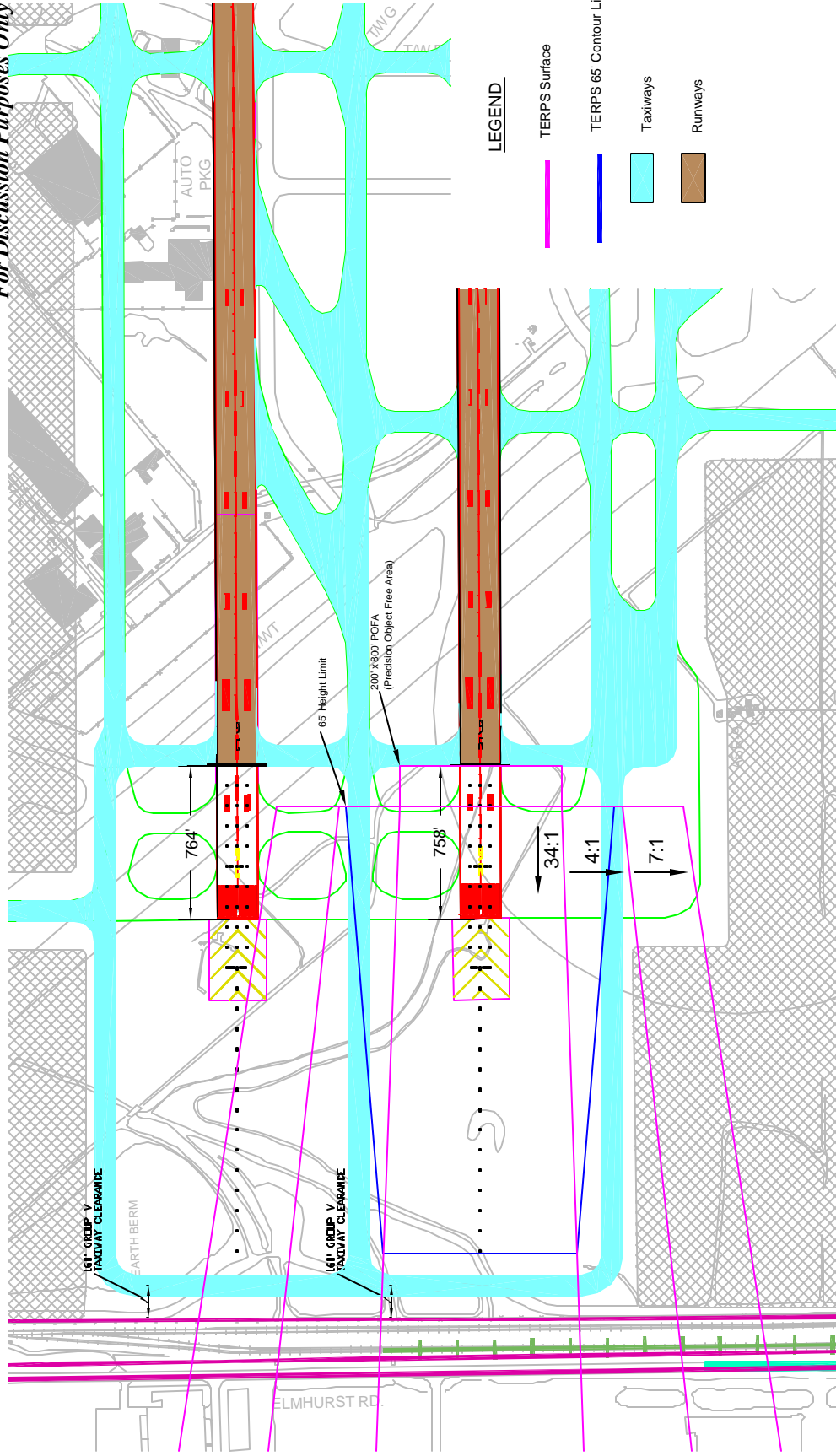
Exhibit III-4

Perimeter Taxiway Proposed Planning Criteria

February 19, 2002

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9. Exhibit III-4 also illustrates the required TERPS approach surface as explained earlier on Exhibit III-1. Based on a review of the 65-foot high contour line, a B-747 could taxi around the approach runway end without penetration of the prescribed surfaces. However, the parallel taxiway separation of 600 feet would have to be increased as the taxiway is extended beyond the threshold area in order to avoid taxi penetrations of the TERPS surfaces. If the parallel taxiway is extended at a constant 600-foot separation, TERPS penetrations of approximately 15 feet (decreasing to zero) would exist over an approximate 700-foot section of taxiway. It should be noted that the proposed planning criteria for a Perimeter Taxiway would preclude the use of it for Group VI aircraft based on both wing span and tail height considerations.
10. **Exhibit III-5** illustrates application of the Perimeter Taxiway Criteria to the approach ends of Runways 9R and 9C. To reduce clutter, only the TERPS approach surface associated with Runway 9R is shown. The exhibit also shows the westernmost locations for runway ends 9E and 9R given the perimeter taxiway requirements. These locations are approximately 760 feet further east than shown on the original concept. Also worthy of note is the fact that extending the parallel taxiway located between the runways to the perimeter taxiway would result in TERPS penetrations discussed previously.
11. **Exhibit III-6** illustrates application of the Perimeter Taxiway Criteria to the approach ends of Runways 27L and 27C, identified as Alternative A. Under Alternative A, the existing east end of Runway 27C is shortened by 316 feet, reducing its overall length to 9,364 feet to limit the east-end property impacts. Similarly, Runway 9R-27L is shortened by 1,867 feet, reducing its overall length to 9,471 feet. As shown on Exhibit III-6, the cross-over taxiway element of the perimeter taxiway provides ADG-V clearance from Bessie Coleman Drive, but impacts the commercial vehicle holding area and the south portion of the former military base. If the Alternative A concept for perimeter taxiways were to be applied to the east end of Runways 9C-27C and 9R-27L in conjunction with that identified on Exhibit III-5 for the west end of these runways, the overall length of Runway 9C-27C would be reduced to 8,600 feet and Runway 9R-27L to 8,713 feet.
12. **Exhibit III-7** illustrates a perimeter taxiway around the approach ends of Runways 27L and 27C, identified as Alternative B. The existing approach end of Runway 27R (designated 27L in the exhibit) is shortened by 725 feet, reducing its overall length to 10,614 feet to limit the east-end property impacts. The approach end of Runway 27C is extended eastward 1,431 feet to align with that of Runway 27L. As shown on Exhibit III-7, to accommodate the cross-over taxiway element of the perimeter taxiway requires crossing Bessie Coleman Drive and essentially all of the property out to, but not including, Mannheim Road. If the Alternative B option were to be adopted for the approach ends of Runways 27L and 27C in conjunction with that presented earlier for the west end, the length of Runway 9C-27C would be 10,347 feet and Runway 9R-27L would be 9,856 feet. Note: TERPS impacts associated with parallel taxiway.



Source: Ricondo & Associates Inc.
 Prepared by: Ricondo & Associates Inc.

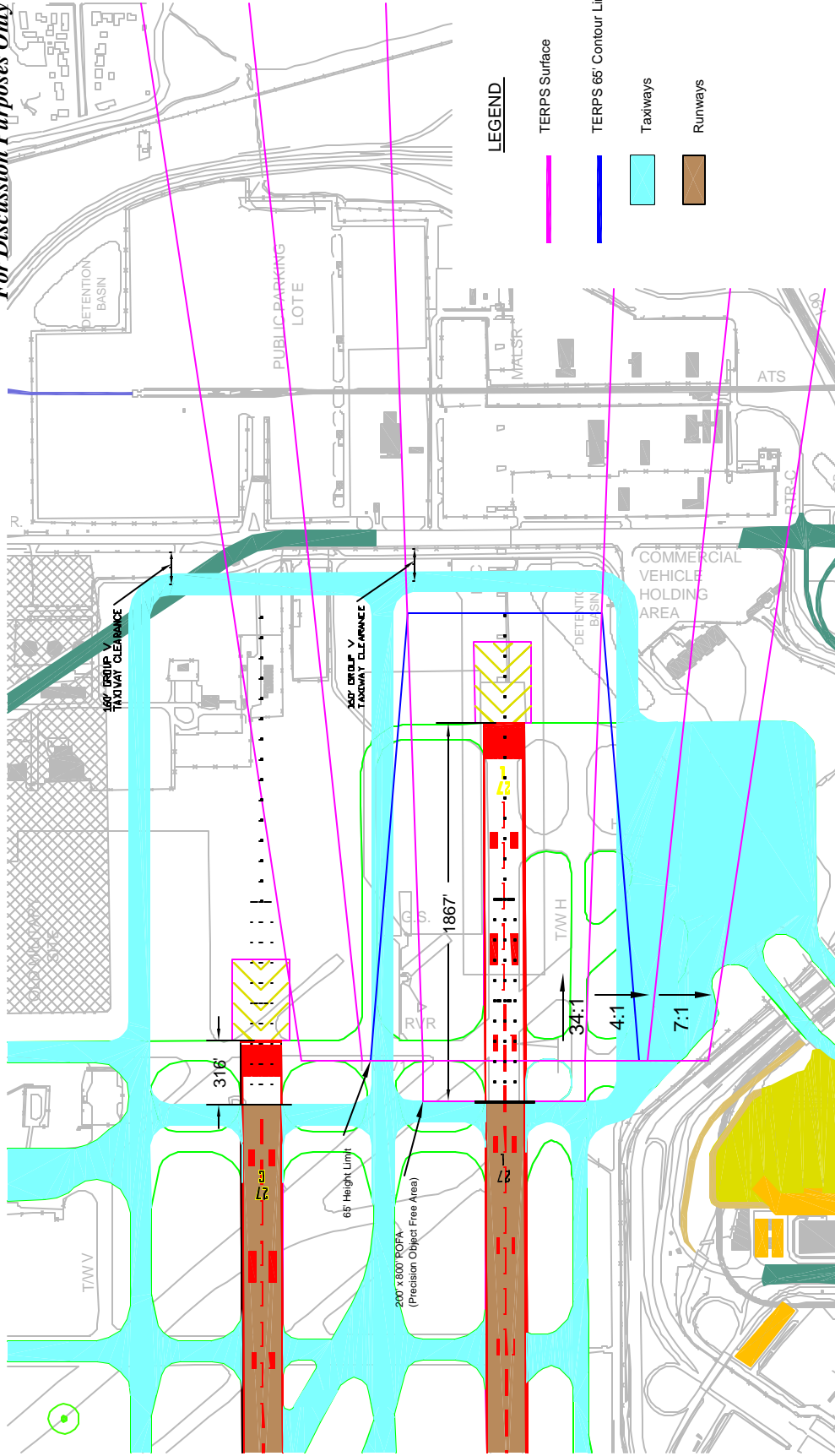


Exhibit III-5

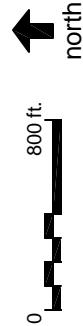
Perimeter Taxiway Assessment Approach End Runways 9R & 9C

February 19, 2002

O'Hare International Airport
Preliminary Draft
For Discussion Purposes Only



Source: Ricondo & Associates Inc.
 Prepared by: Ricondo & Associates Inc.



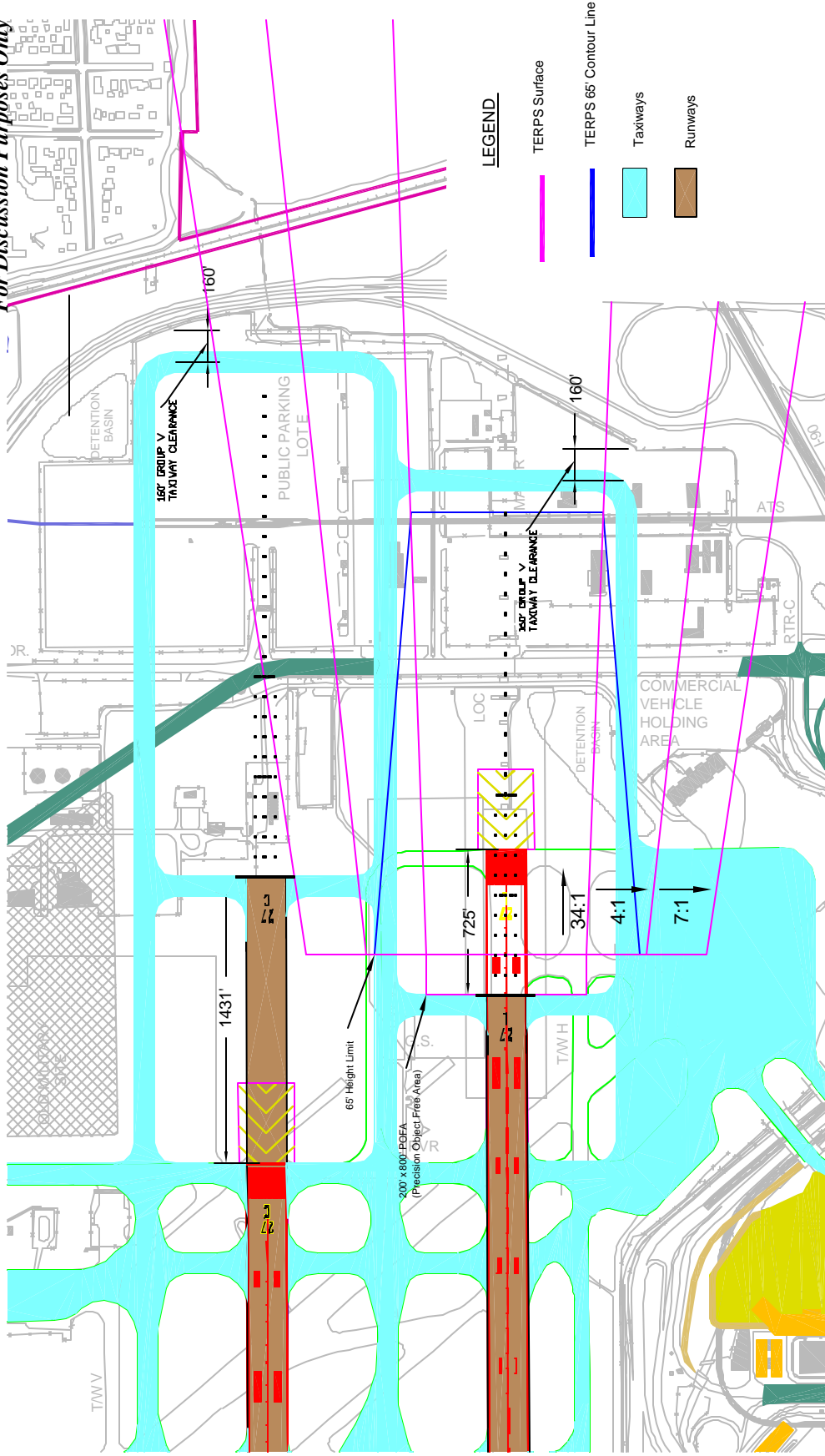
ORD-Base-Future-Solid-PAV.dwg

Exhibit III-6

Perimeter Taxiway Assessment
Approach End Runways 27L & 27C (Alt-A)

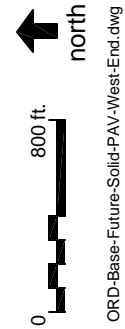
February 19, 2002

O'Hare International Airport
Preliminary Draft
For Discussion Purposes Only



Source: Ricondo & Associates Inc.
 Prepared by: Ricondo & Associates Inc.

Exhibit III-7

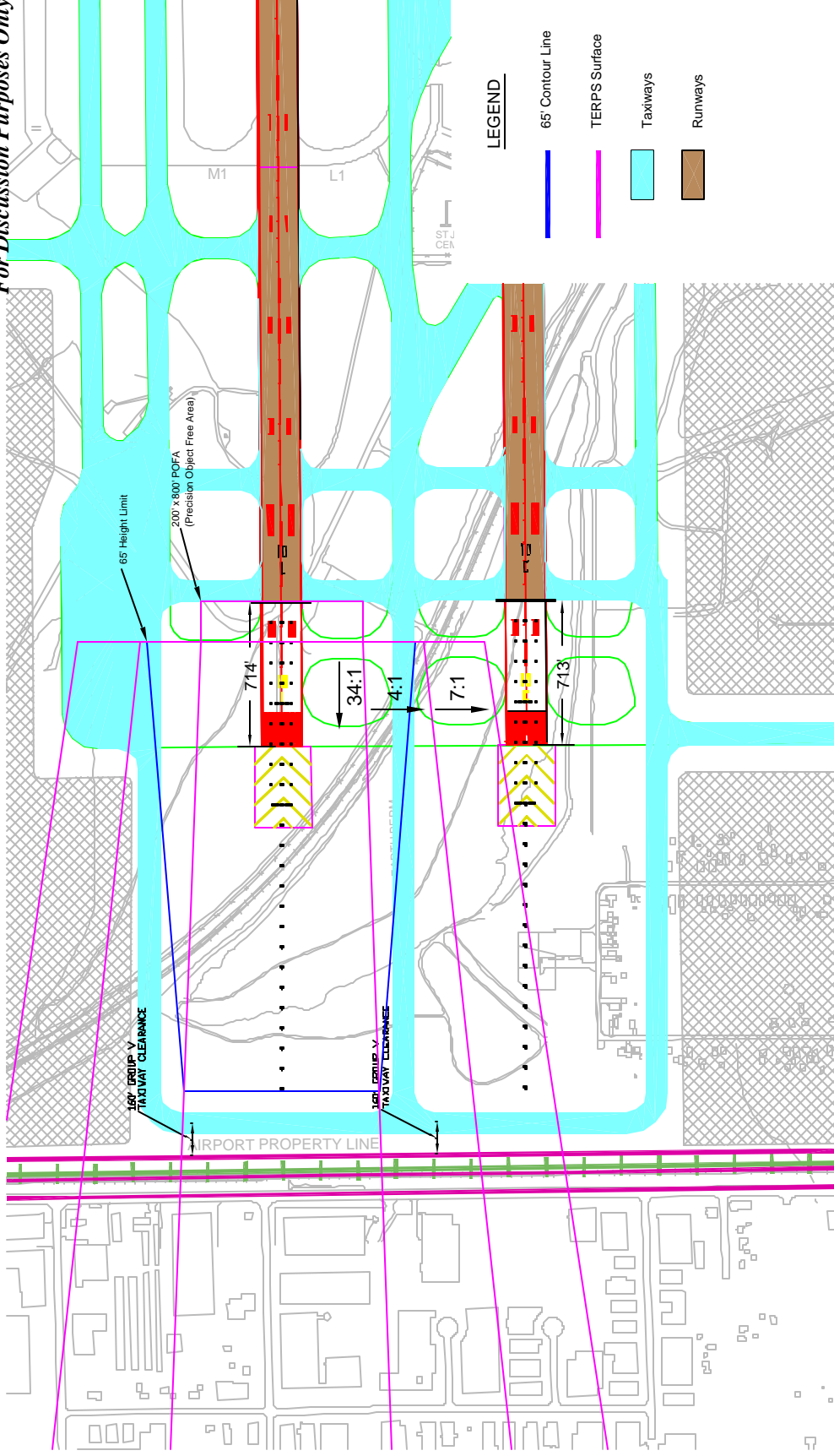


Perimeter Taxiway Assessment
Approach End Runways 27L & 27C (Alt- B)

February 19, 2002

**PRELIMINARY DRAFT
FOR DISCUSSION PURPOSES ONLY**

13. Application of the Perimeter Taxiway Criteria to the approach end of Runways 10L and 10C is illustrated on **Exhibit III-8**. As shown on Exhibit III-8, maintaining Group V taxiway clearance to the property/fence line, due east of the railroad, and providing the approach clearance over the perimeter taxiway would result in the westernmost location of runway ends 10L and 10C being approximately 714 feet east of that depicted in the original concept.
14. **Exhibit III-9** illustrates application of the Perimeter Taxiway Criteria to the approach ends of Runways 28C and 28R. A review of the TERPS approach surface and the corresponding 65-foot high contour line shows that to maintain the parallel taxiway to Runway 4R-22L as the crossing in the approach to Runway 28C requires the runway end to be located approximately 1,708 feet west of the location shown in the original concept. This reduces the overall length of Runway 10C-28C to 9,092 feet, and if taken in conjunction with the west end Perimeter Alternative, would result in an overall runway length of 8,379 feet. The perimeter taxiway alternative illustrated for Runway 28R maintains the independent use of Runway 4R-22L, but would force a substantial runway length reduction of 3,094 feet to Runway 10L-28R (9,906 feet available). If this east end perimeter taxiway concept were to be combined with the west end alternative, the length of Runway 10L-28R would be reduced to 9,192 feet.
15. With Perimeter Taxiways in place around the approach ends of the closely spaced parallel runways, consideration was given to whether there would be a need for a taxiway between each pair of runways. One scenario suggests that without the parallel taxiway, all landing aircraft could exit the runway away from the terminal area, use the perimeter taxiway, and proceed to the terminal. However, factors such as where the runway exit occurs and which terminal area the aircraft is destined for could create traffic conflicts or appreciably lengthen travel distances. **Exhibit III-10** illustrates an anticipated taxi flow pattern, with the center taxiway in place, under a west airfield operating configuration. While only the north airfield is depicted, the flows could be duplicated on the south airfield. A review shows aircraft landing on Runway 27C and destined to the west terminal area would exit the runway to the left and taxi around the end of Runway 27L. Conversely, Runway 27C landings destined to the existing east terminal area could exit to the right and proceed eastbound on the north parallel and subsequently around the approach ends of Runway 27C and Runway 27L. Reversal of the arrival and departure runways could facilitate taxi flows for arriving aircraft and is discussed in more detail as part of the overall operating configurations discussion.
16. In response to considering the need for additional holding areas to serve the remote runways, **Exhibit III-11** illustrates hold pad locations for Runway 9L-27L and **Exhibit III-12** illustrates hold pad locations for Runway 10R-28L. Each pad is capable of holding either one B-747-400 or two B-767-300s, one behind the other, with 20 feet of separation clearance between them. Hold pad centerlines are offset 267 feet from all parallel taxiways, thus providing taxi clearance for up to Group V aircraft traffic on the associated taxiway. All hold pad geometry presented corresponds to FAA Advisory Circular 150/5300-13 (Change 6).



Source: Ricondo & Associates Inc.
Prepared by: Ricondo & Associates Inc.

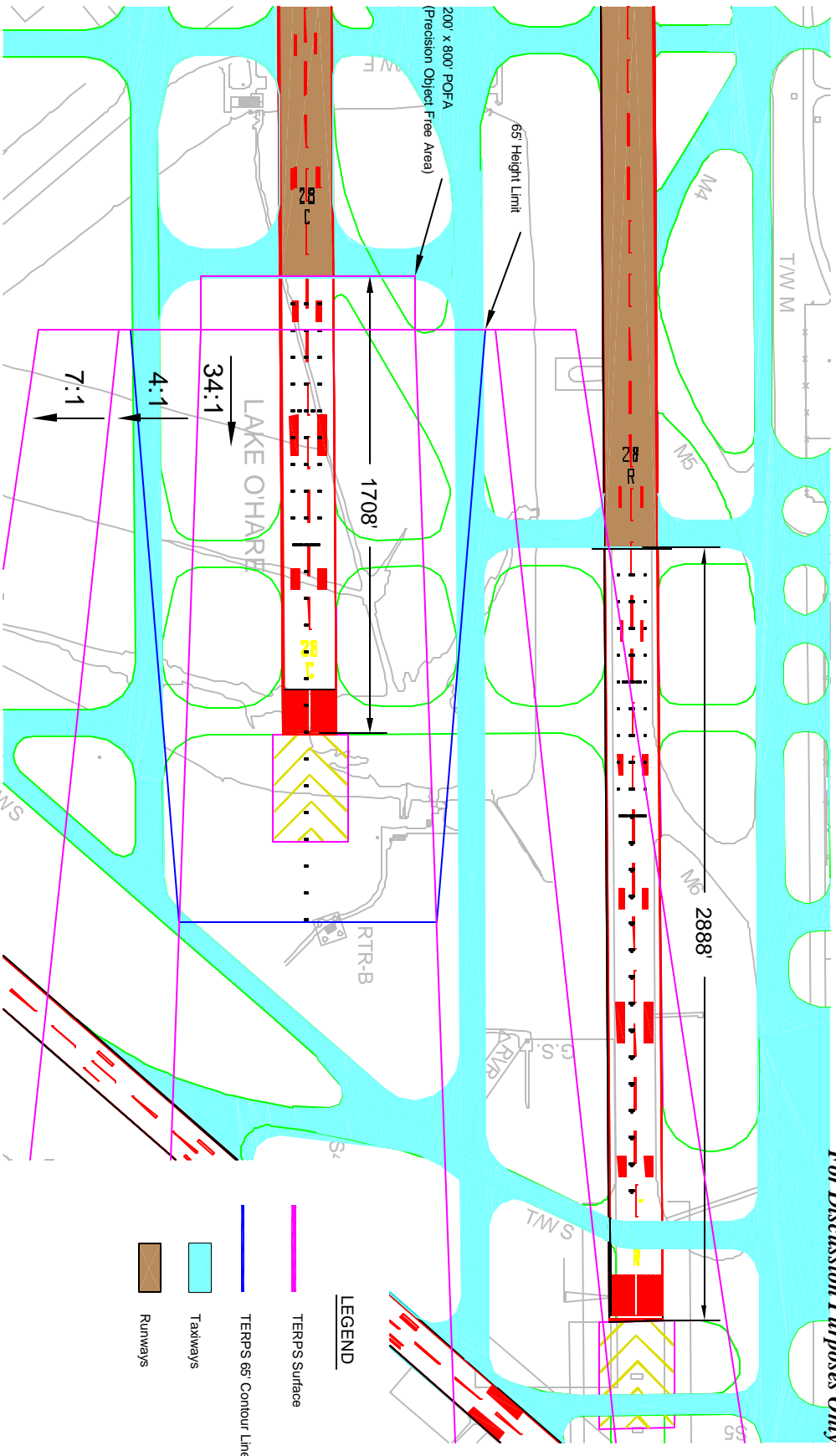
Exhibit III-8

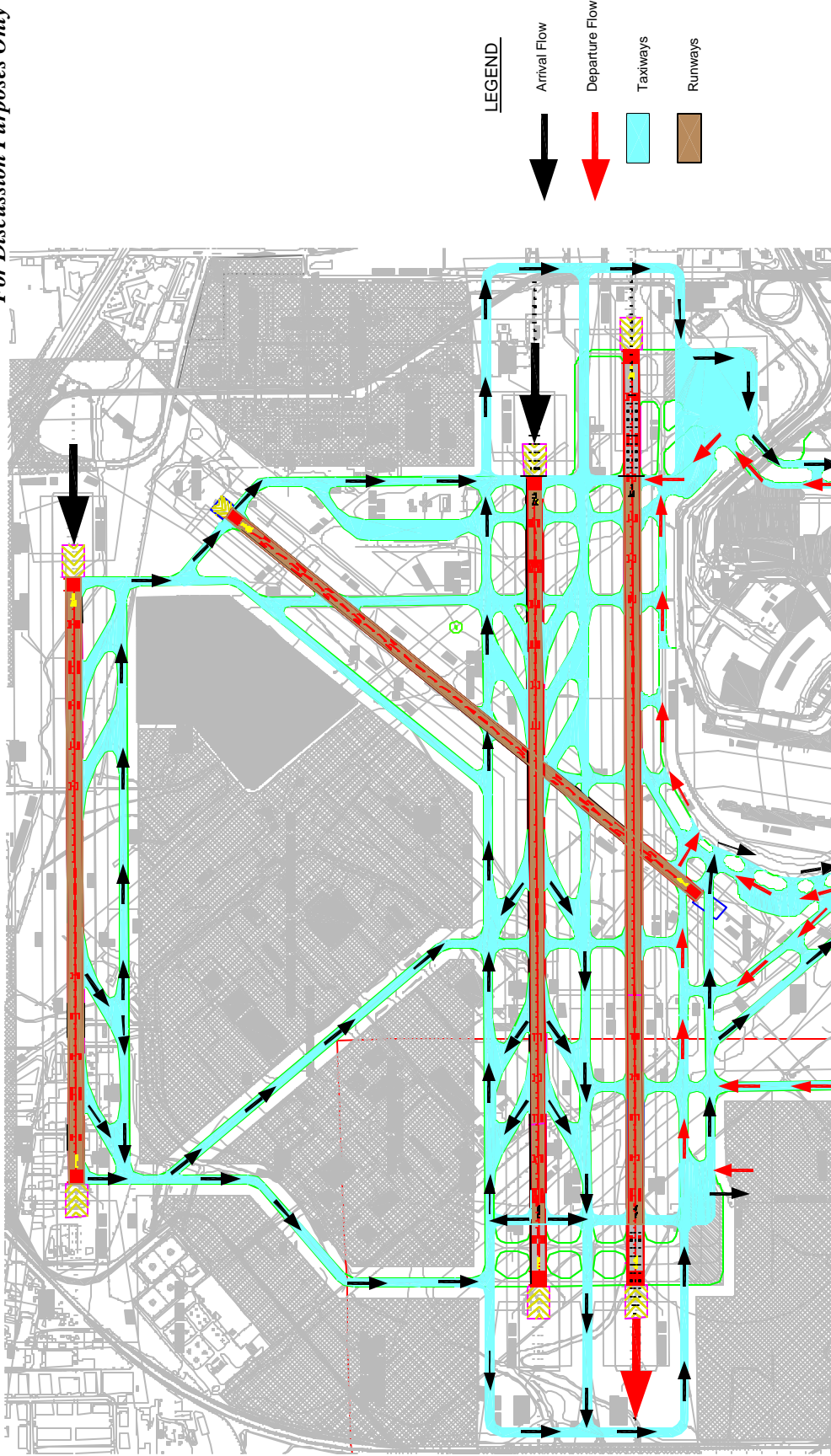
Perimeter Taxiway Assessment Approach End Runways 10L & 10C

ORD-Base-Future-Solid-PAV-West-End.dwg

February 19, 2002

O'Hare International Airport
Preliminary Draft
For Discussion Purposes Only





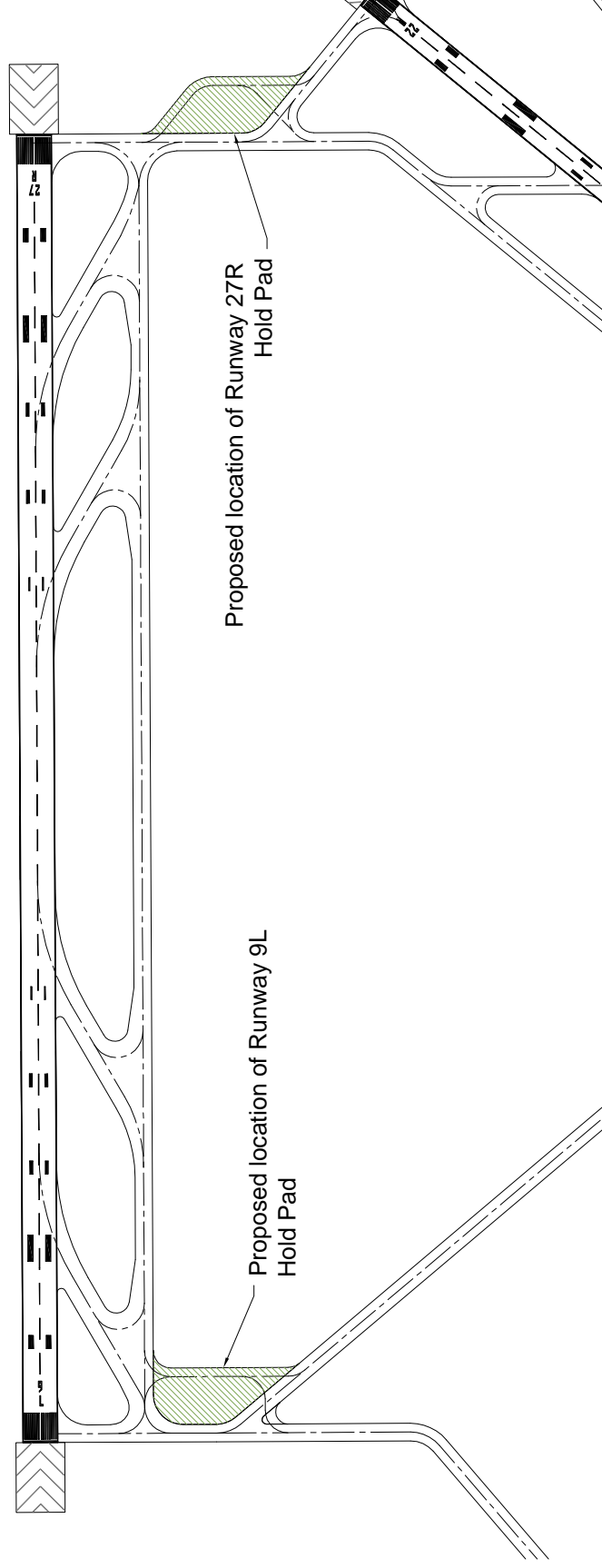
Source: Ricondo & Associates Inc.
 Prepared by: Ricondo & Associates Inc.

Exhibit III-10

Perimeter Taxiway Assessment North Airfield Taxi Flows (West Flow)

February 19, 2002

Notes:
Hold Pads designed to accommodate two 767-300
Taxiway clearance designed for ADG VI.



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

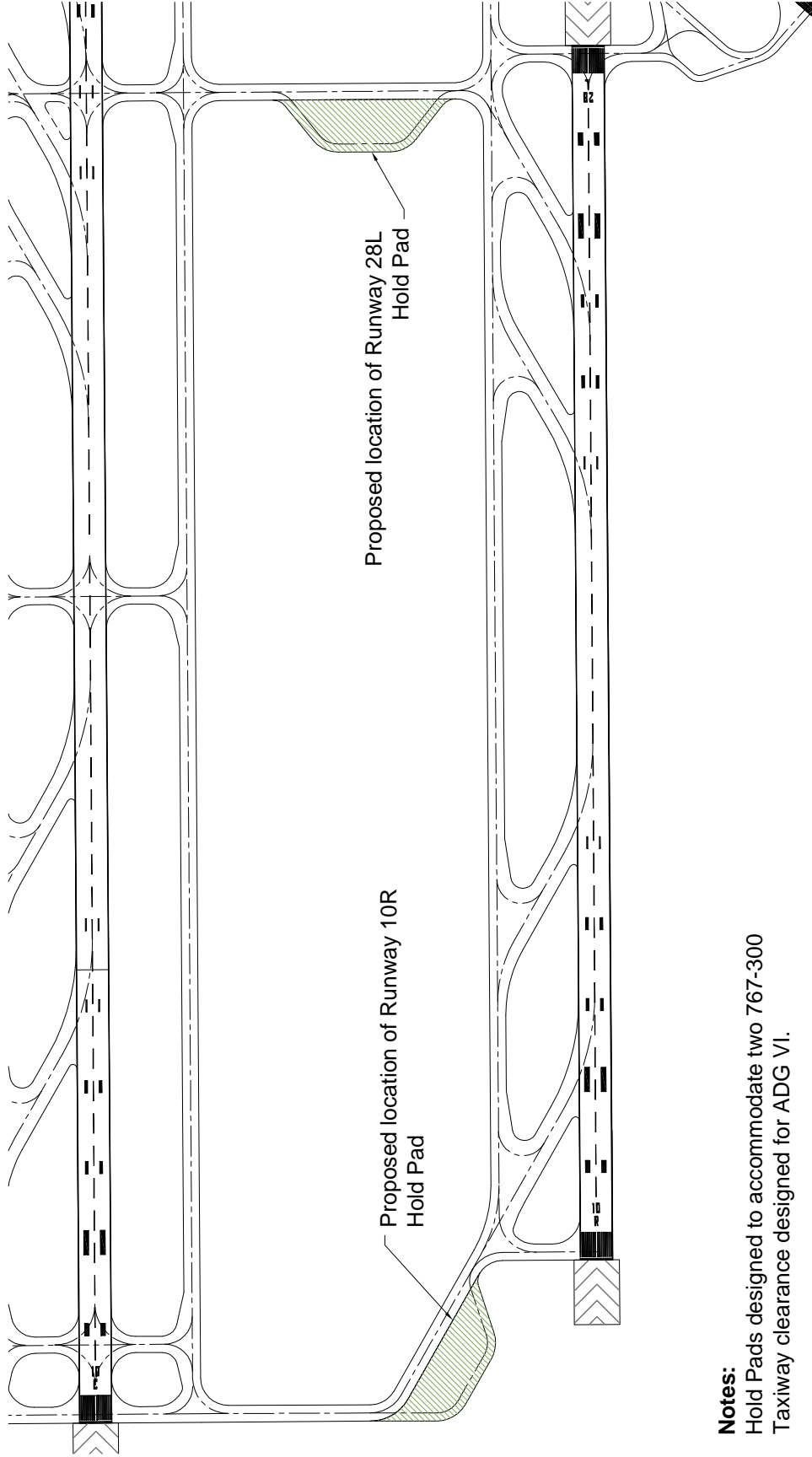


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Exhibit III-11

Runway 9L-27R Aircraft Hold Pad Locations

February 19, 2002



Notes:
Hold Pads designed to accommodate two 767-300
Taxiway clearance designed for ADG VI.

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

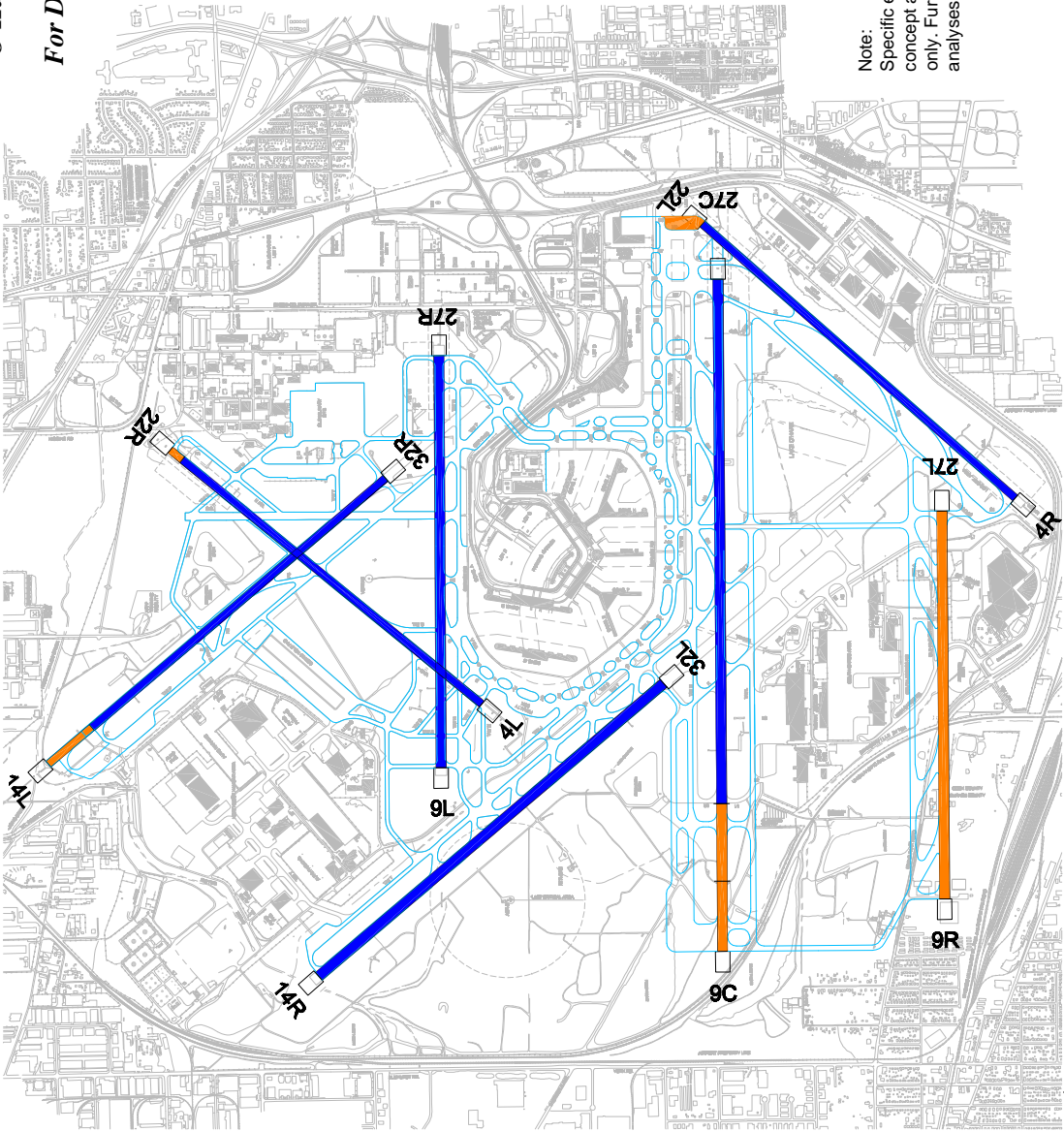


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Exhibit III-12

Runway 10R-28L
Aircraft Hold Pad Locations

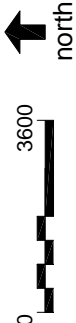
February 19, 2002



RWY Name	Lengths
4L-22R	8000'
4R-22L	8071'
9L-27R	7967'
9C-27C	13000'
9R-27L	7500'
14L-32R	8550'
14R-32L	8750'

Note:
 Specific elements included in this layout
 concept are shown for illustration purposes
 only. Further obstruction and operational
 analyses are necessary.

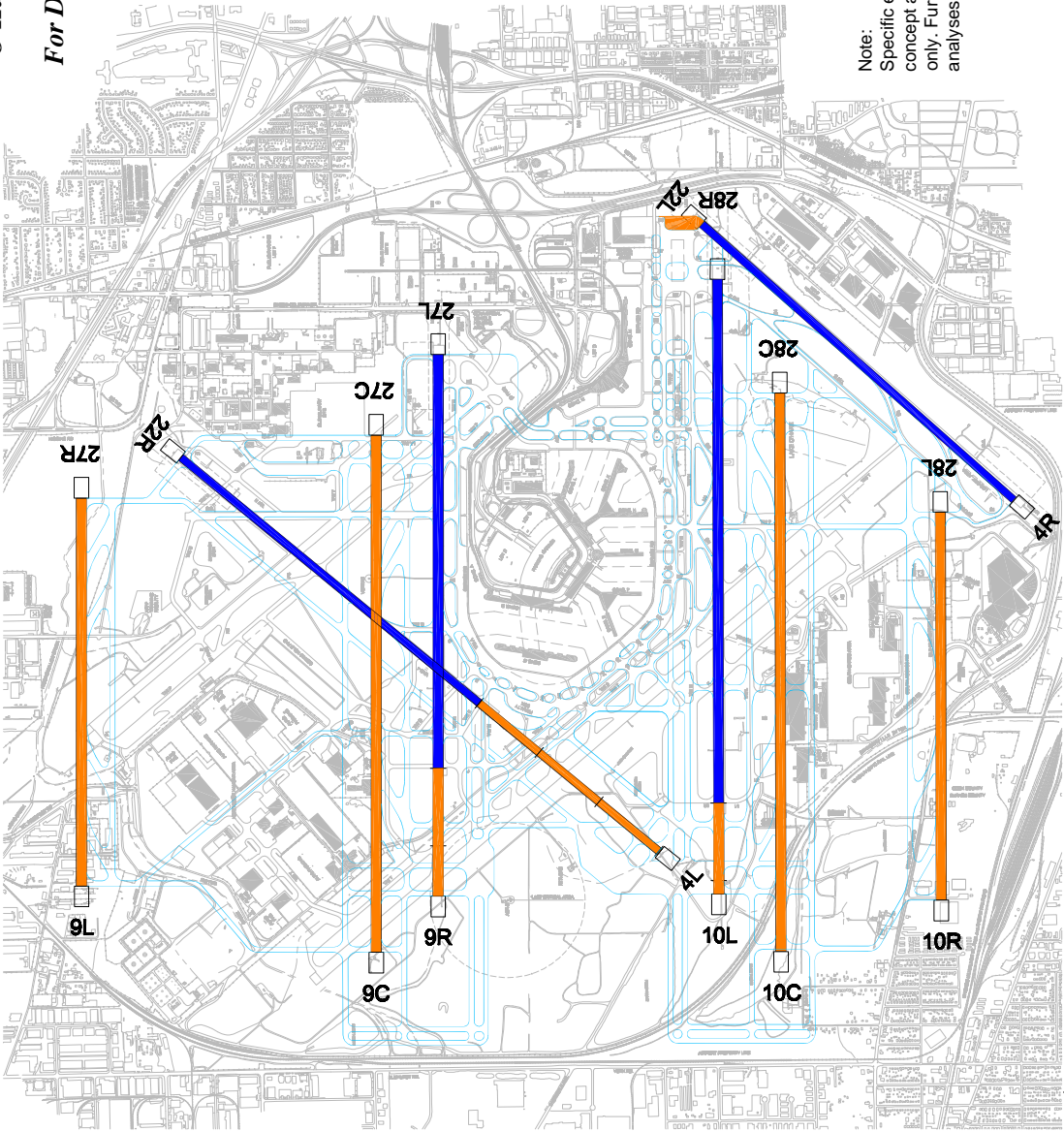
Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.



Option-1-L.dwg

Exhibit III-13
Alternate Airfield Layout
Concept Layout Option 1

February 19, 2002

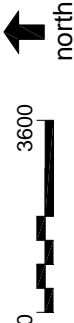


Note:
 Specific elements included in this layout
 concept are shown for illustration purposes
 only. Further obstruction and operational
 analyses are necessary.

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

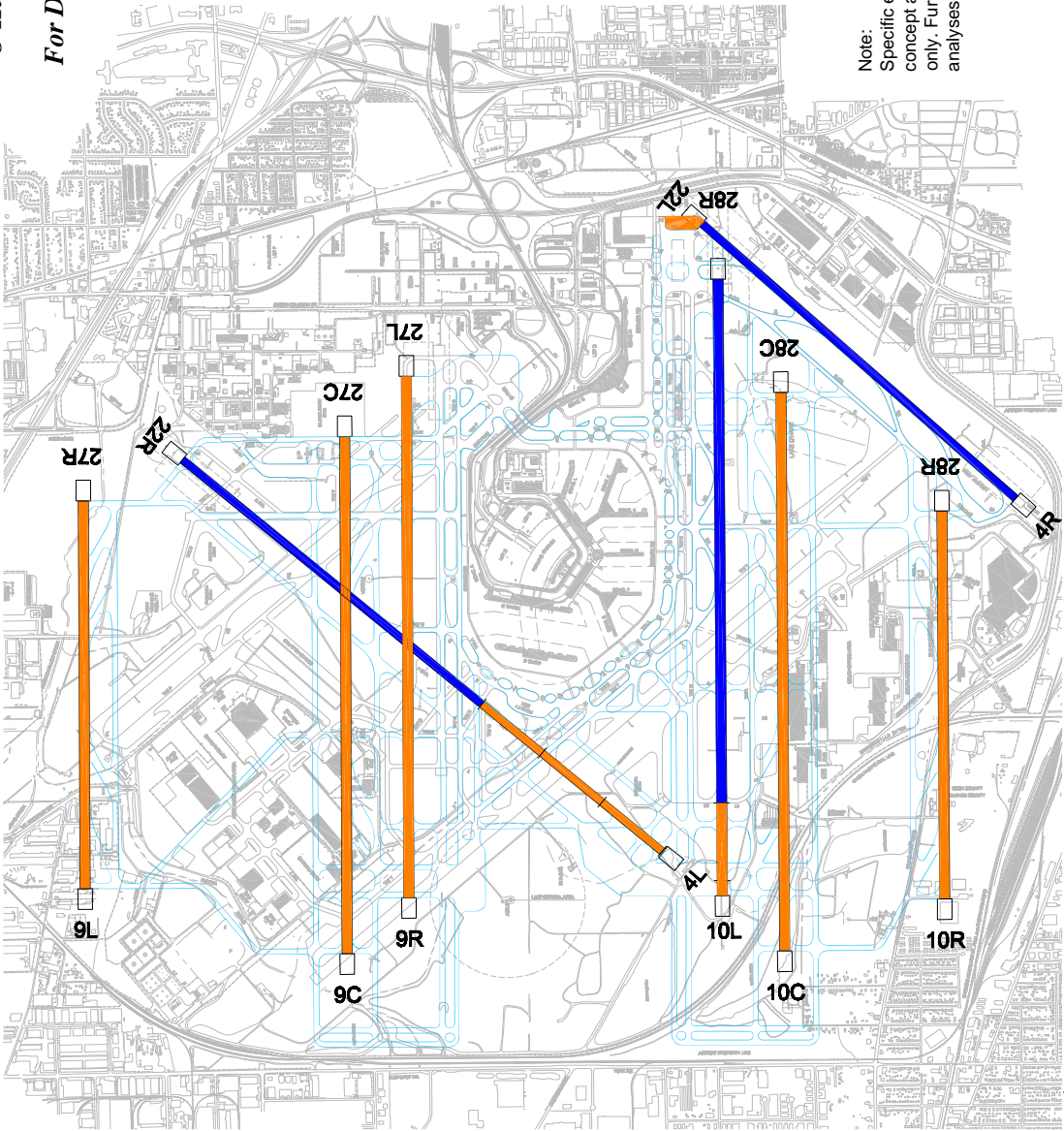
Exhibit III-14

Alternate Airfield Layout Concept Layout Option 2



Option-2_L.dwg

February 19, 2002

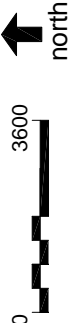


Note:
 Specific elements included in this layout
 concept are shown for illustration purposes
 only. Further obstruction and operational
 analyses are necessary.

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

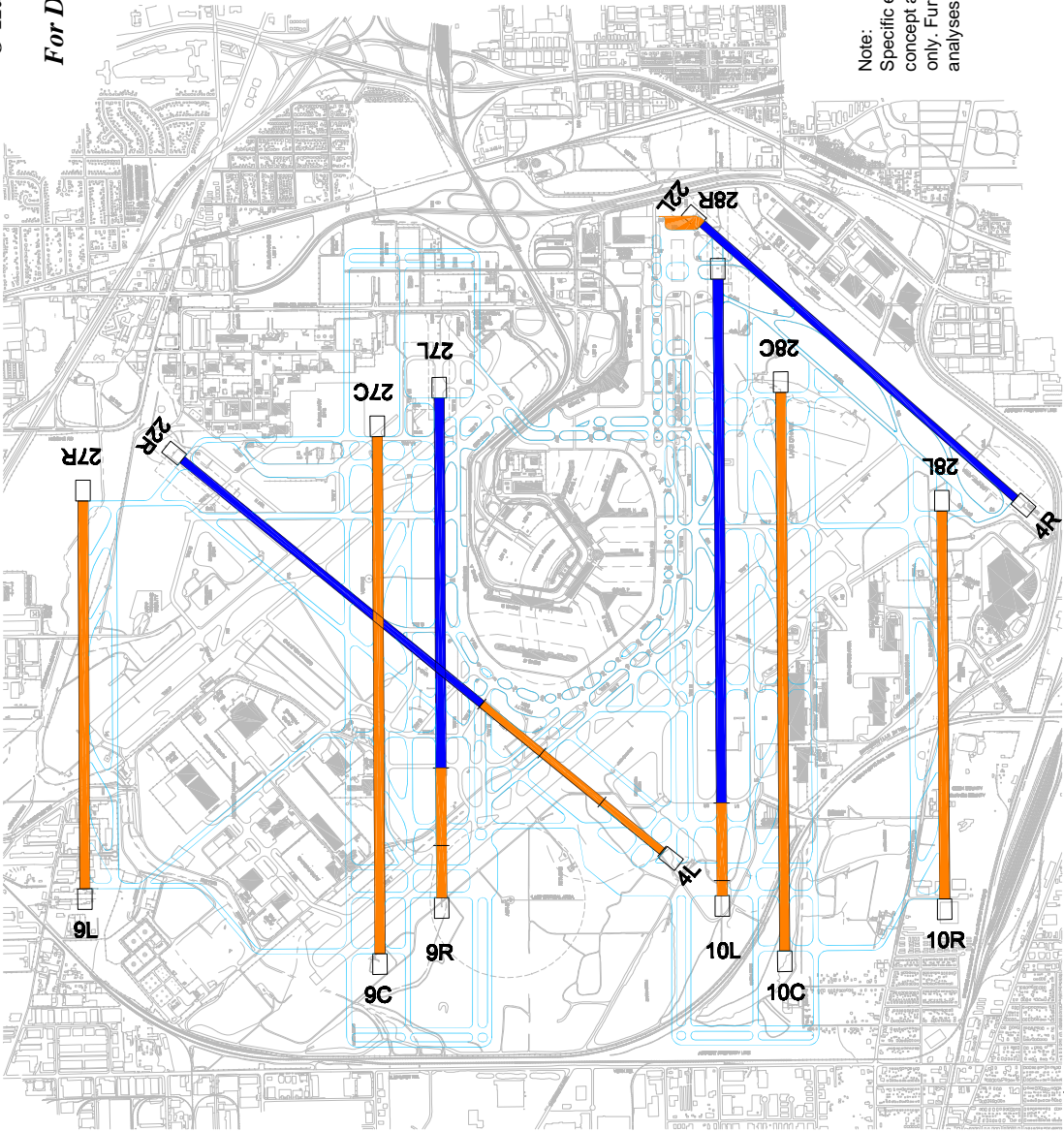
Exhibit III-15

Alternate Airfield Layout Concept Layout Option 3



Option-3-L.dwg

February 19, 2002



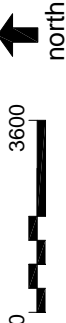
Note:
 Specific elements included in this layout
 concept are shown for illustration purposes
 only. Further obstruction and operational
 analyses are necessary.

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

Exhibit III-16

Alternate Airfield Layout
Concept Layout Option 4

February 19, 2002



Option-4-L.dwg

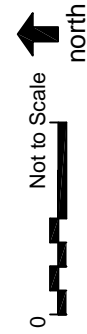
***PRELIMINARY DRAFT
FOR DISCUSSION PURPOSES ONLY***

17. **Exhibit III-13** depicts an alternate concept layout that has been suggested by the O'Hare Air Traffic Control Tower (ATCT). This concept includes a new South Runway 9-27. In addition, it includes an extension to the existing Runway 9R-27L and a shortening of existing Runways 14R-32L and 14L-32R. This results in the existing Runway 9R-27L being 13,000 feet long, Runway 14R-32L being 8,750 feet long, and Runway 14L-32R being 8,550 feet long.
18. **Exhibits III-14, 15, and 16** depict alternate layouts of the full concept. These alternate layouts include various taxiways alternatives and result in respective changes to available runway lengths. As well, the alternate layouts include an extension to the existing Runway 4L-22R to provide an additional long runway.

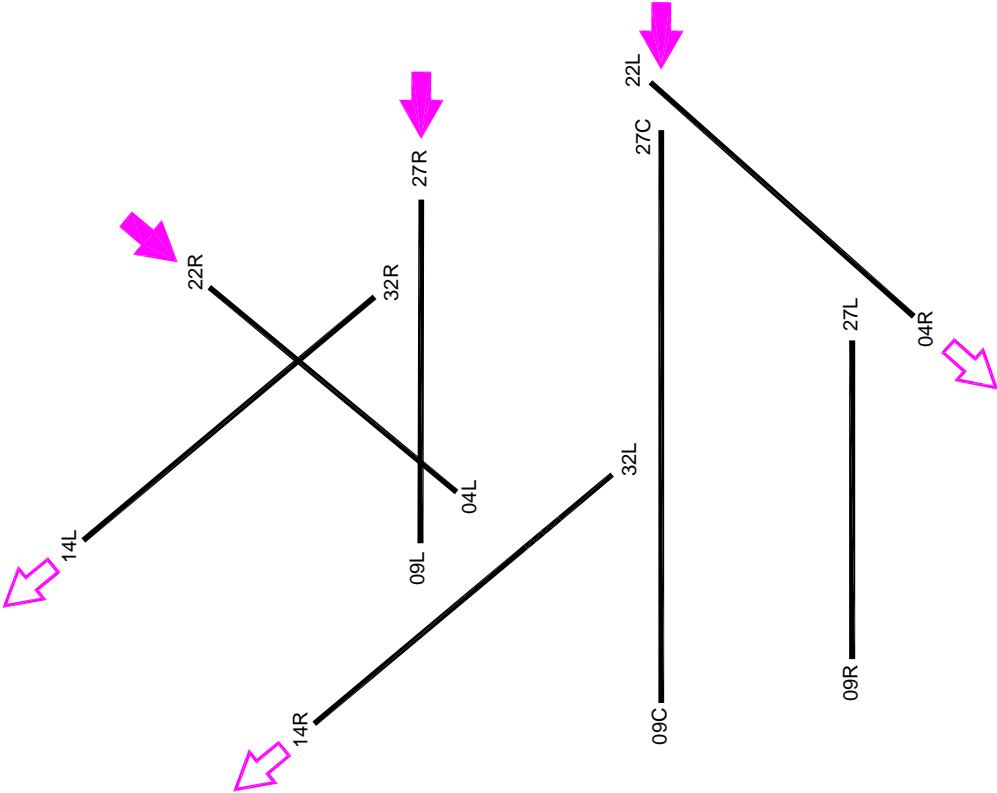
IV. OPERATING CONFIGURATIONS

1. **Exhibit IV-1** depicts a possible runway-operating configuration for Concept Layout Option 1. This layout would generally operate like the existing airfield except during high-arrival periods. During VFR conditions, the predominant east-flow configuration would consist of arrivals on Runways 09C, 09R, and 04R. Runways 32L and 04L would be the predominant departure runways, with Runway 32R providing departure capability during high-demand periods.
2. **Exhibit IV-2** depicts a possible runway-operating configuration for Concept Layout Option 1. This layout would generally operate like the existing airfield except during high-arrival periods. During VFR conditions, the predominant west-flow configuration would consist of arrivals on Runways 22R, 27R, and 27C. Runways 22L, 32L, and 32R would generally operate as departure runways.
3. **Exhibit IV-3** depicts a possible runway-operating configuration for Concept Layout Option 1. This layout depicts the predominant east-flow operation during IFR conditions. Runways 09L, 09C, and 09R would operate as arrival runways, while Runways 32L and 4L would serve as departure runways.
4. **Exhibit IV-4** depicts a possible runway-operating configuration for Concept Layout Option 1. This layout depicts the predominant west-flow operation during IFR conditions. Runways 27L, 27C, and 27R would operate as the predominant arrival runways. Runways 32L and 32R would operate as the departure runways.
5. **Exhibit IV-5** depicts a possible runway-operating configuration for Concept Layout Option 2. This layout depicts the predominant east-flow operation during VFR conditions. Arrivals would generally operate on Runways 09R, 10L, and 10R, while 09L would serve arrivals during high-demand periods. Departures would generally operate on Runways 04L, 09C, and 10C.
6. **Exhibit IV-6** depicts a possible runway-operating configuration for Concept Layout Option 2. This layout depicts the predominant west-flow operation during VFR conditions. Arrivals would generally operate on Runways 28R, 27L, and 27R, while 27L would serve arrivals during high-demand periods. Departures would generally operate on Runways 22L, 27C, and 28C.
7. **Exhibit IV-7** depicts a possible runway-operating configuration for Concept Layout Option 2. This layout depicts the predominant east-flow operation during IFR conditions. Arrivals would generally operate on Runways 10R, 09R, and 09L. Departures would generally operate on Runways 09C, 10L, and 10C.

8. **Exhibit IV-8** depicts a possible runway-operating configuration for Concept Layout Option 2. This layout depicts the predominant west-flow operation during IFR conditions. Arrivals would generally operate on Runways 28R, 27L, and 27R. Departures would generally operate on Runways 22L, 27C, and 28C.



1-VFR-East-Exhibit-IV-1.dwg



Legend

- Primary Arrivals
- Secondary Arrivals
- Primary Departures
- Secondary Departures
- Potential location for Intersection Departures

Source: Ricoondo & Associates, Inc.
Prepared by: Ricoondo & Associates, Inc.

0 Not to Scale north

1-VFR-West-Exhibit-IV-2.dwg

Exhibit IV-2

Possible Runway Operating Configuration
Concept Layout Option 1 - VFR - West Flow

February 19, 2002

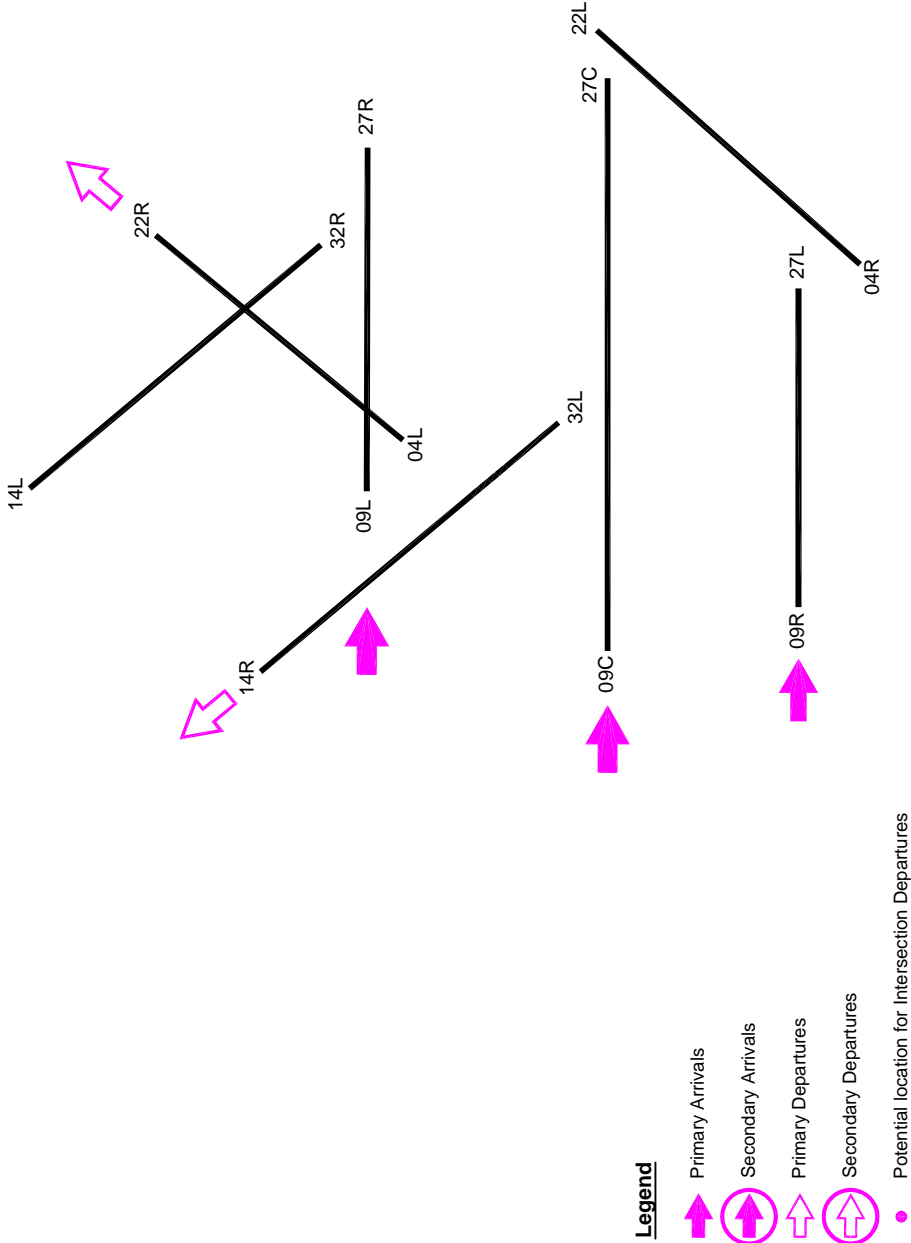
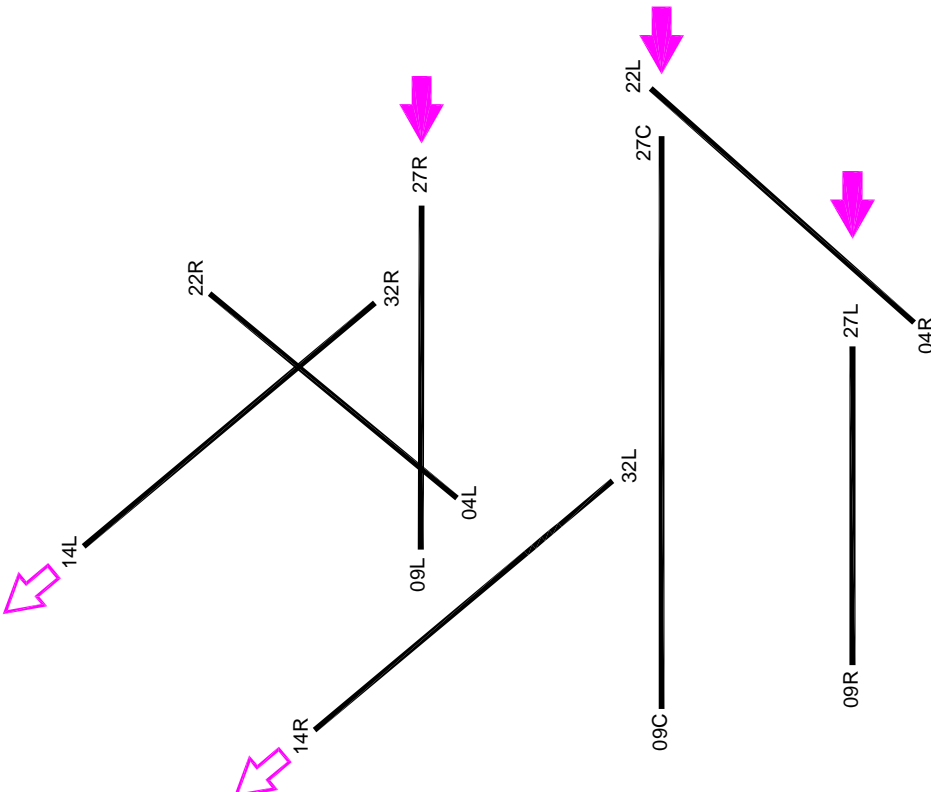


Exhibit IV-3

Possible Runway Operating Configuration
Concept Layout Option 1 - IFR - East Flow



Legend

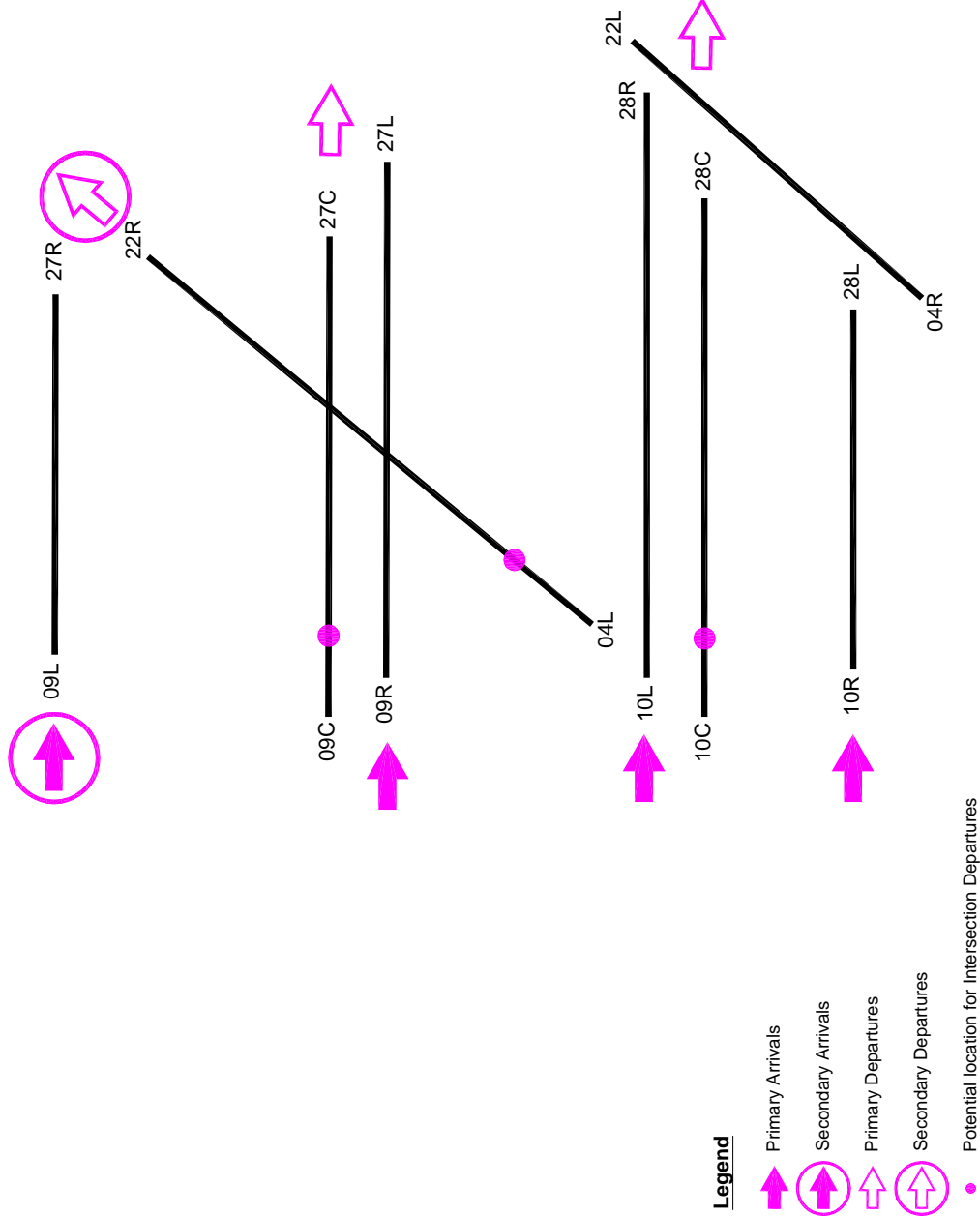
- Primary Arrivals
- Secondary Arrivals
- Primary Departures
- Secondary Departures
- Potential location for Intersection Departures

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

0 Not to Scale north

1-IFR-West-Exhibit-IV-4.dwg

Possible Runway Operating Configuration
Concept Layout Option 1 - IFR - West Flow

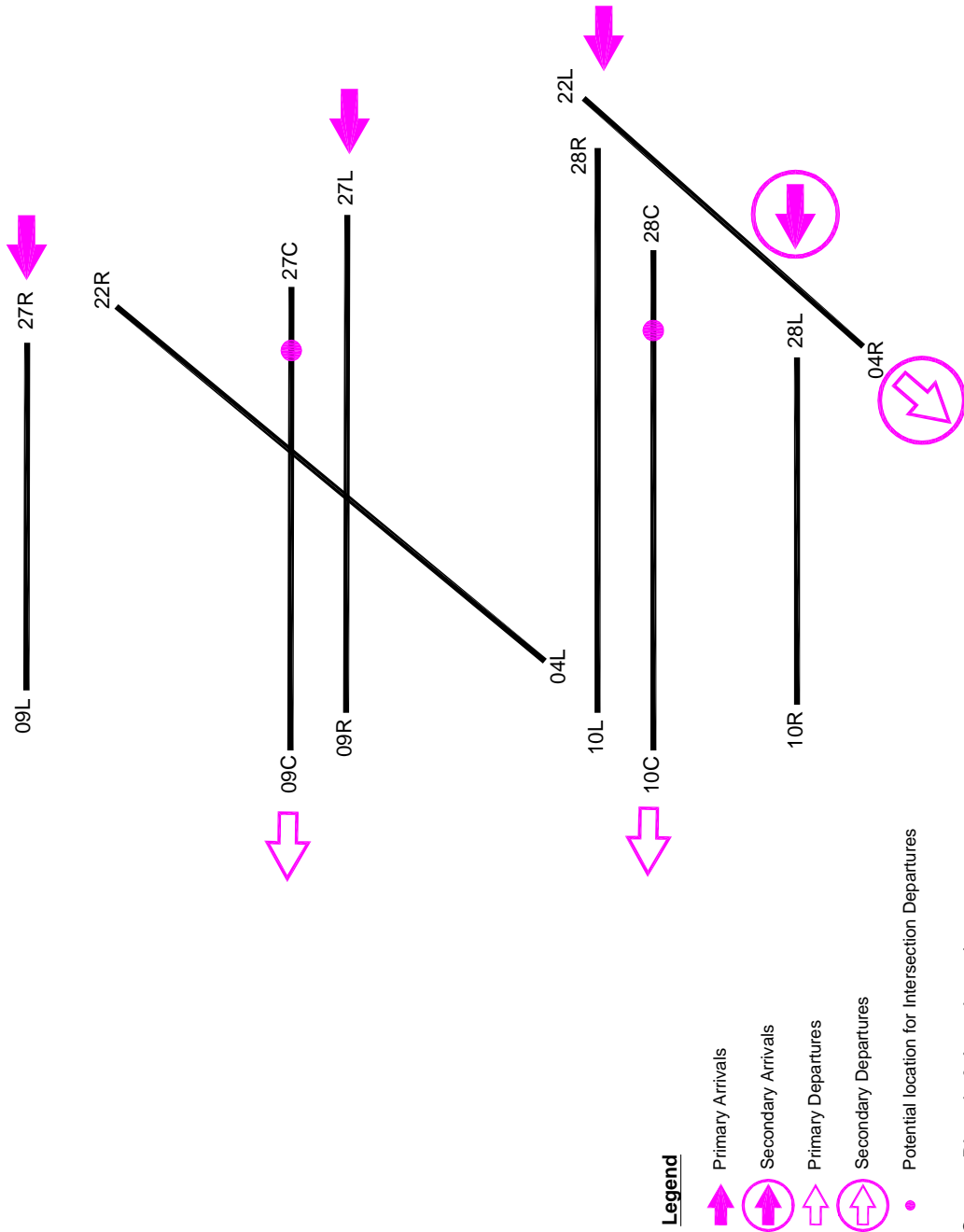


Source: Ricoondo & Associates, Inc.
Prepared by: Ricoondo & Associates, Inc.

Exhibit IV-5

Possible Runway Operating Configuration Concept Layout Option 2 - VFR - East Flow

February 19, 2002

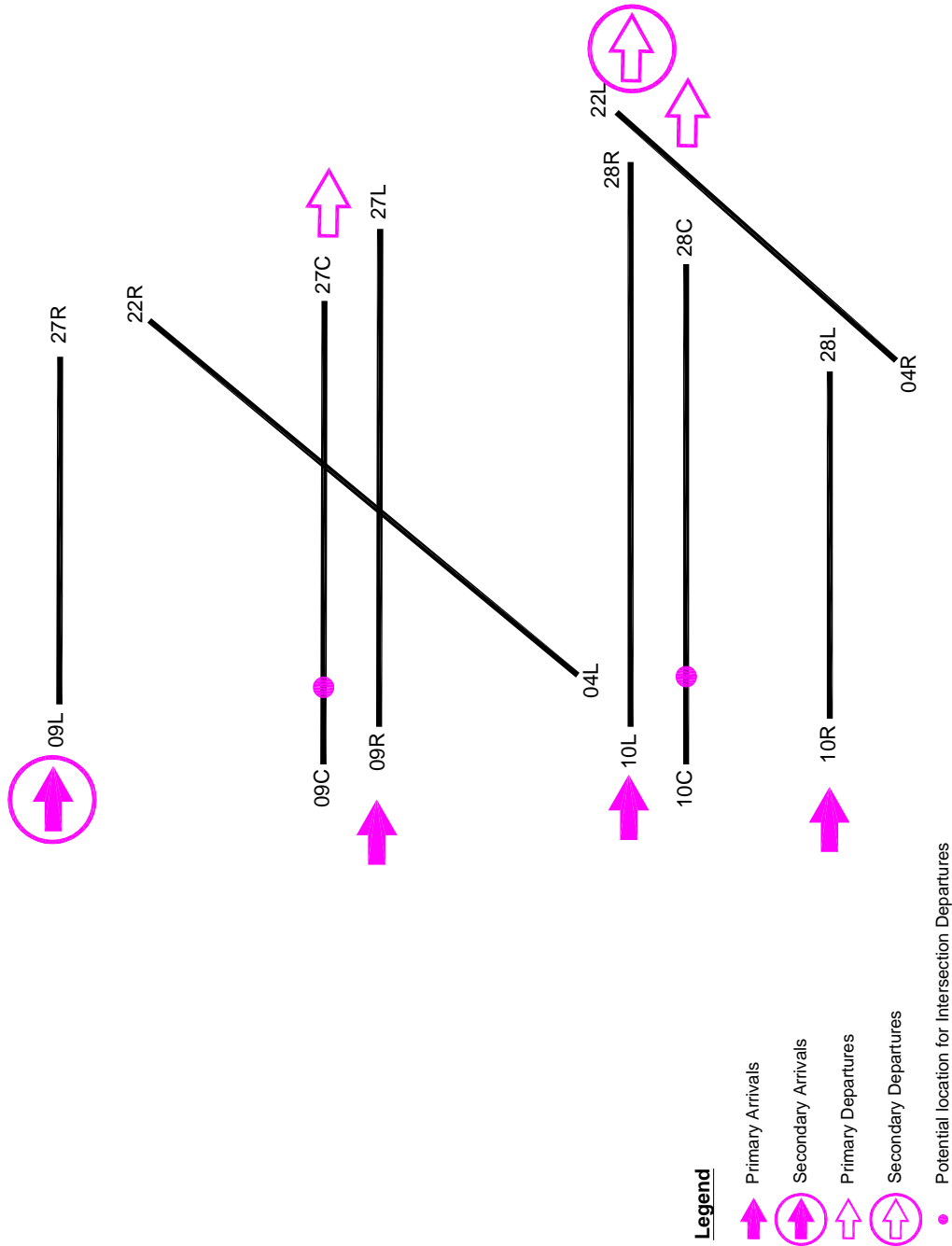


Source: Ricoondo & Associates, Inc.
Prepared by: Ricoondo & Associates, Inc.

Exhibit IV-6

Possible Runway Operating Configuration Concept Layout Option 2 - VFR - West Flow

February 19, 2002



Source: Ricoondo & Associates, Inc.
 Prepared by: Ricoondo & Associates, Inc.

0 Not to Scale north

2-IFR-East-Exhibit-IV-7.dwg

Exhibit IV-7

Possible Runway Operating Configuration Concept Layout Option 2 - IFR - East Flow

February 19, 2002

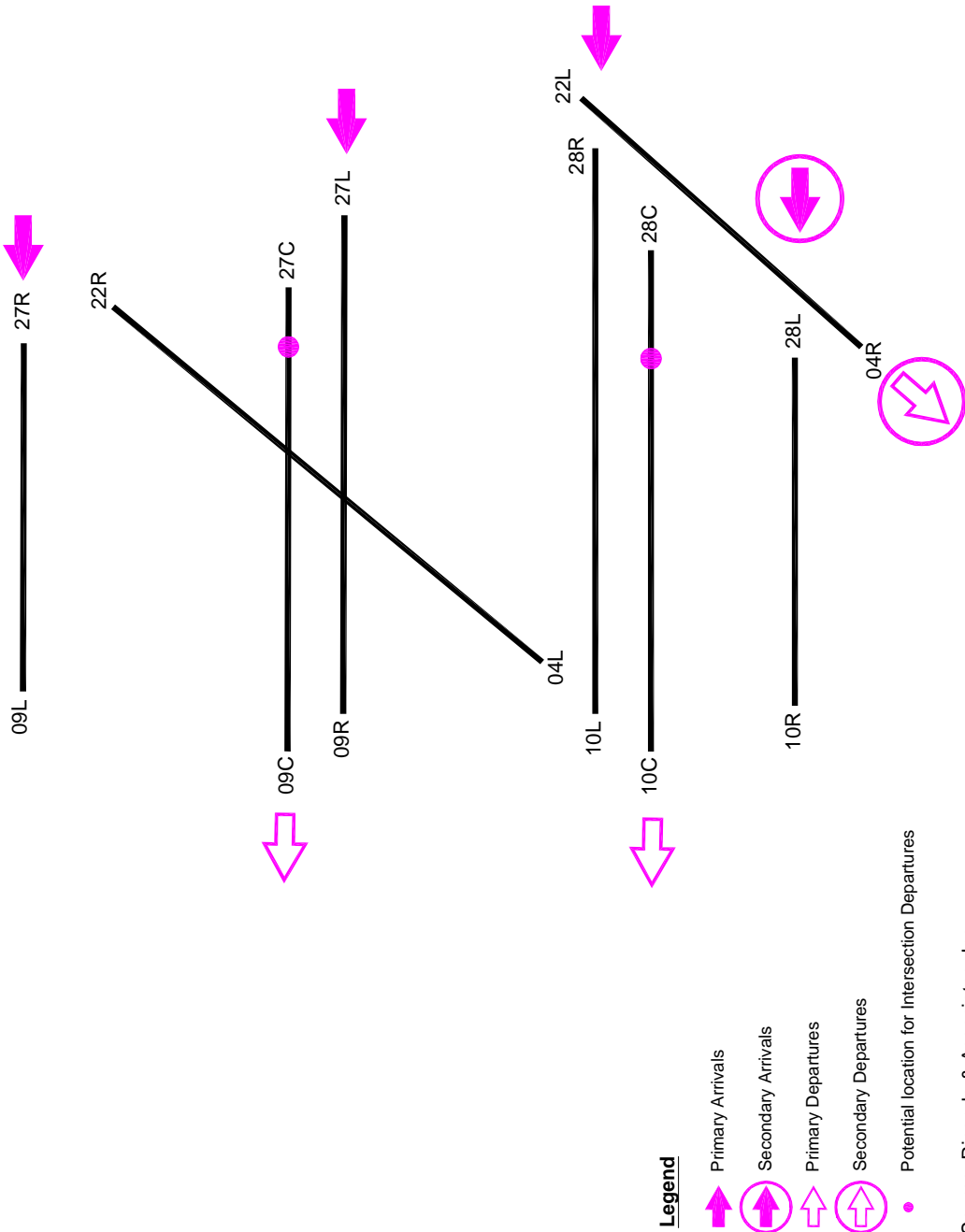


Exhibit IV-8

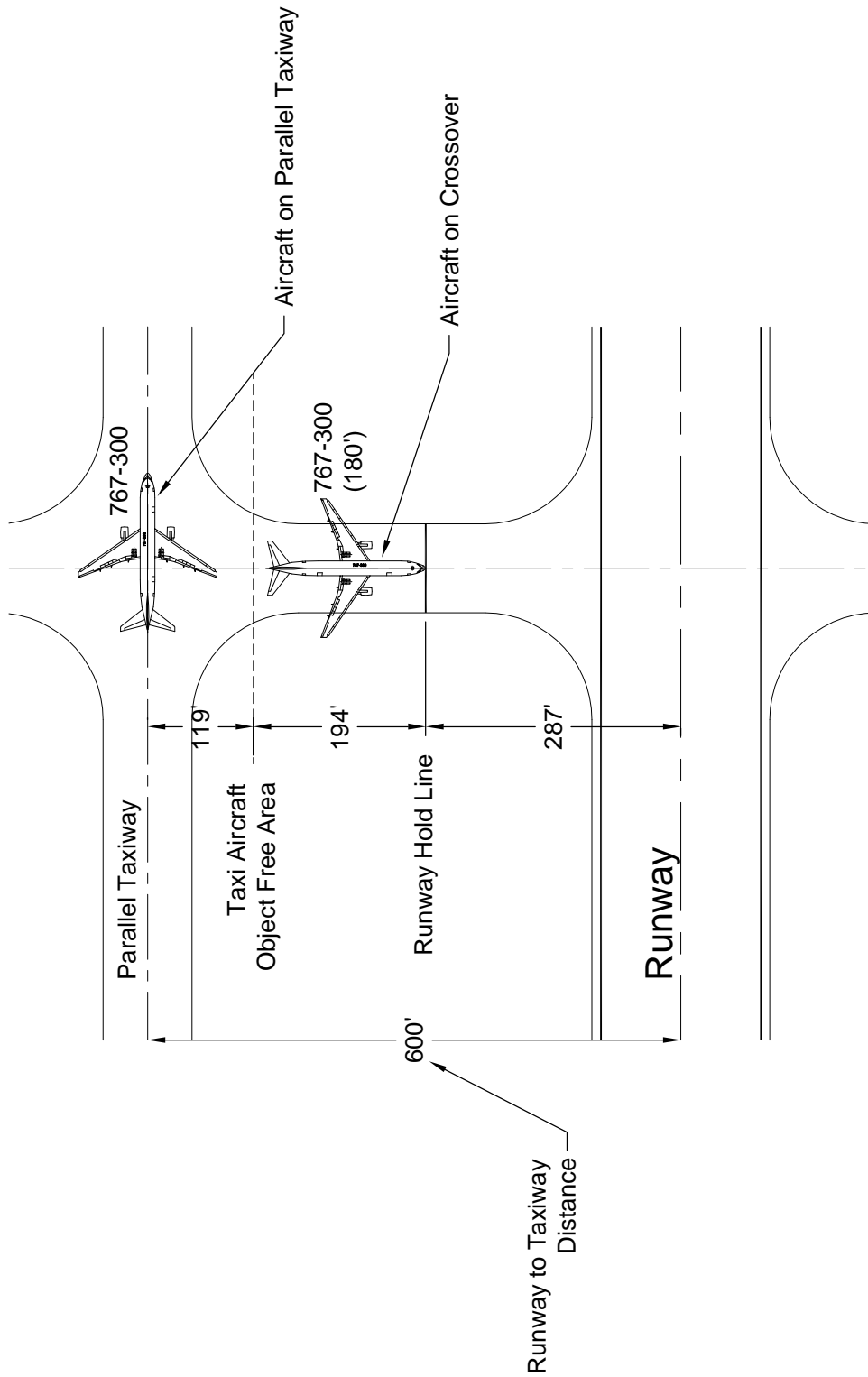
Possible Runway Operating Configuration Concept Layout Option 2 - IFR - West Flow

0 Not to Scale north

2-IFR-East-Exhibit-IV-8.dwg

***PRELIMINARY DRAFT
FOR DISCUSSION PURPOSES ONLY***

Issue Raised	Raised By	Date Raised	Current Status	Responsibility
Need for dual taxiways on north side of existing terminal core	APCR	2/6/2002	To be Analyzed	Consultant
Need for multiple runways that are at least 12,000' in length	APCR	2/6/2002	Awaiting Data	User Input
Group VI outlook when studying all improvements	APCR	2/6/2002	In Process	Consultant
Identification of sacred facilities	APCR	2/6/2002	To be Analyzed	City of Chicago
Concern for service roads	APCR	2/6/2002	To be Analyzed	Consultant
Available runway length in high-crosswind situations	APCR	2/6/2002	To be Analyzed	Consultant
Upgrade of Runways 4/22 to CAT-II/III	APCR	2/6/2002	To be Analyzed	Consultant
Impact associated with the Wood Dale water tower	APCR	2/6/2002	To be Analyzed	Consultant
Weather Analysis - contaminated Rwy's (more detail)	FAA	2/5/2002	Data Provided	Consultant
Taxiway times	United Airlines	2/5/2002	To be Analyzed	Consultant
4- Phase airfield evolution diagram (press conf.) more phasing options	FAA	2/5/2002	To be Analyzed	Consultant
Rwy lengths and their effect on incursion risk	FAA	2/5/2002	In Process	User Input
Perimeter taxiways	FAA	2/5/2002	In Process	Consultant
Inboard runways as predominant arrival runway; outboard for departures	FAA	2/11/2002	In Process	Consultant
End-taxiway for Runway 22L	FAA	2/11/2002	To be Analyzed	Consultant
Effect of modernization plan on national airspace	FAA	2/5/2002	To be Analyzed	FAA



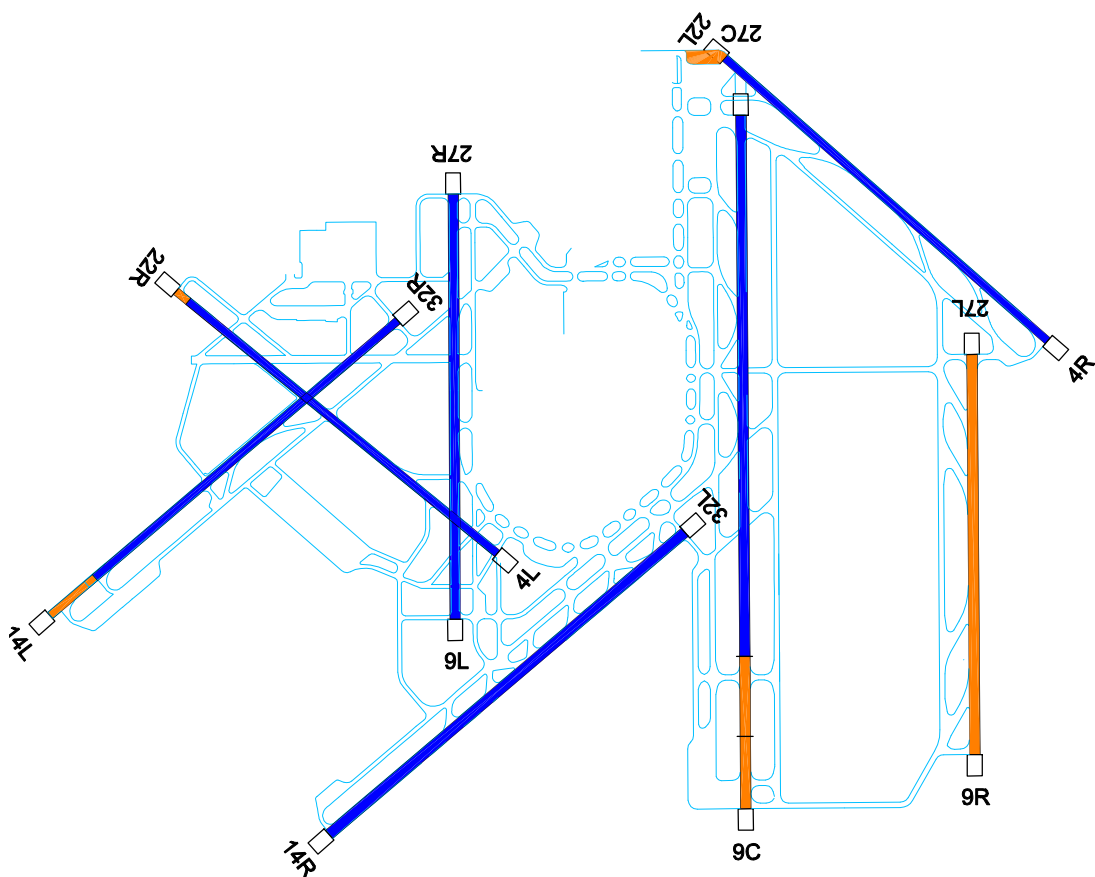
Supplemental Exhibit 1

Table III-1 Illustration

Not to Scale

Rwy-Twy-Separation-Exhibits.dwg

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Supplemental Exhibit 2

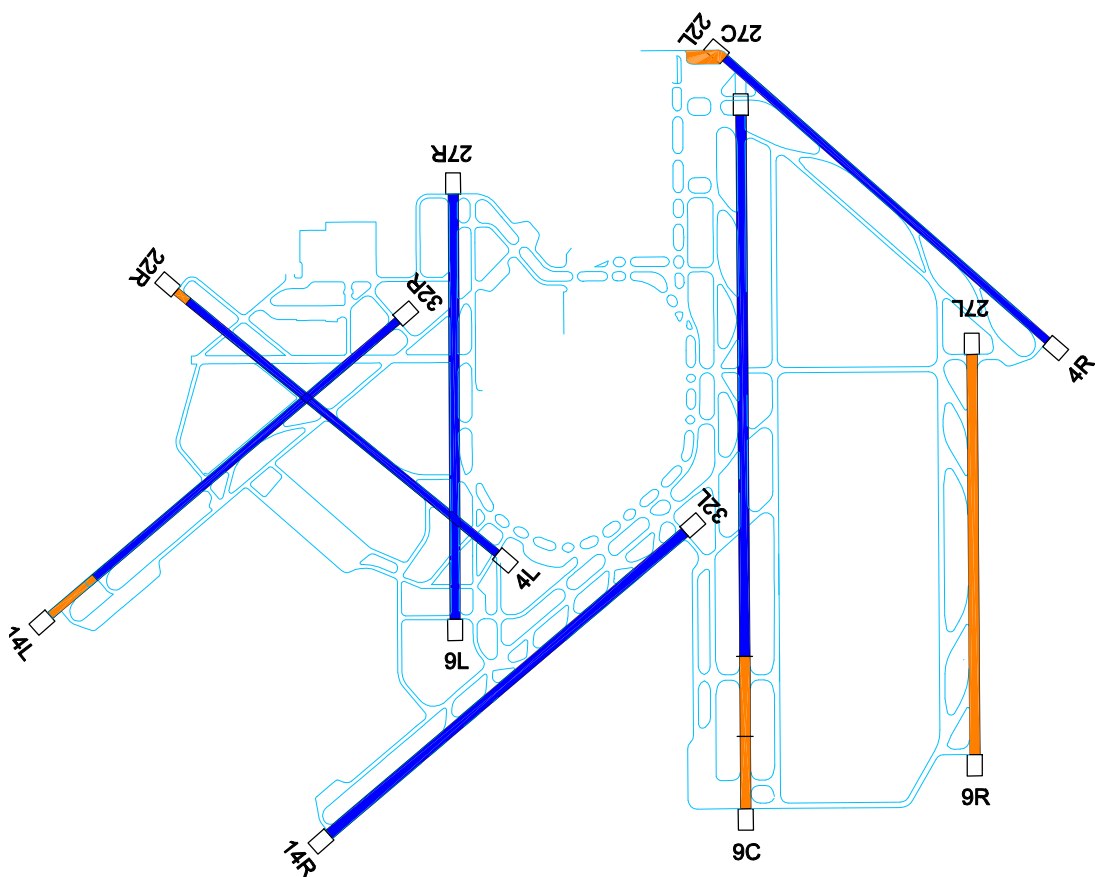
Concept Layout Option 1

Possible Taxiway Flow Sketch

0 3600
north

Supplemental Exhibit 2.dwg

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Supplemental Exhibit 2

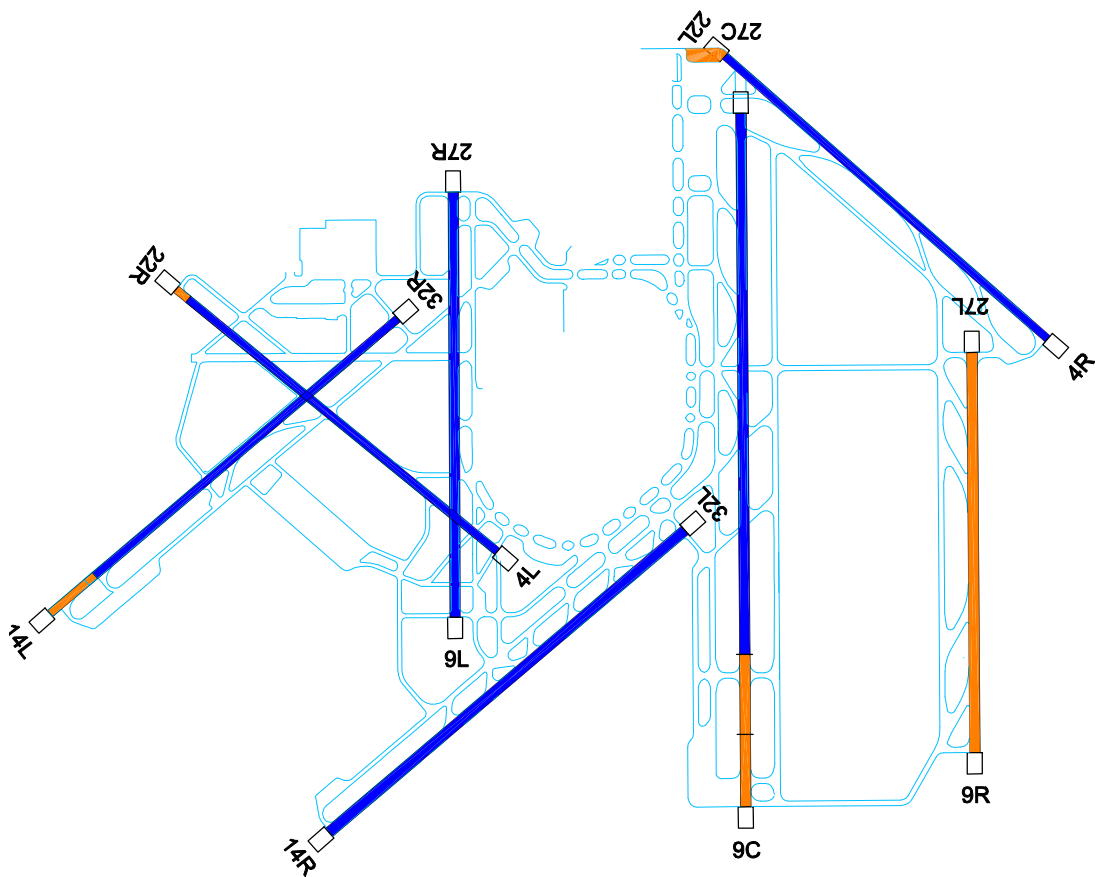
Concept Layout Option 1

Possible Taxiway Flow Sketch

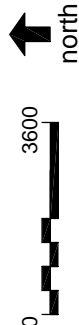
0 3600
north

Supplemental Exhibit 2.dwg

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.



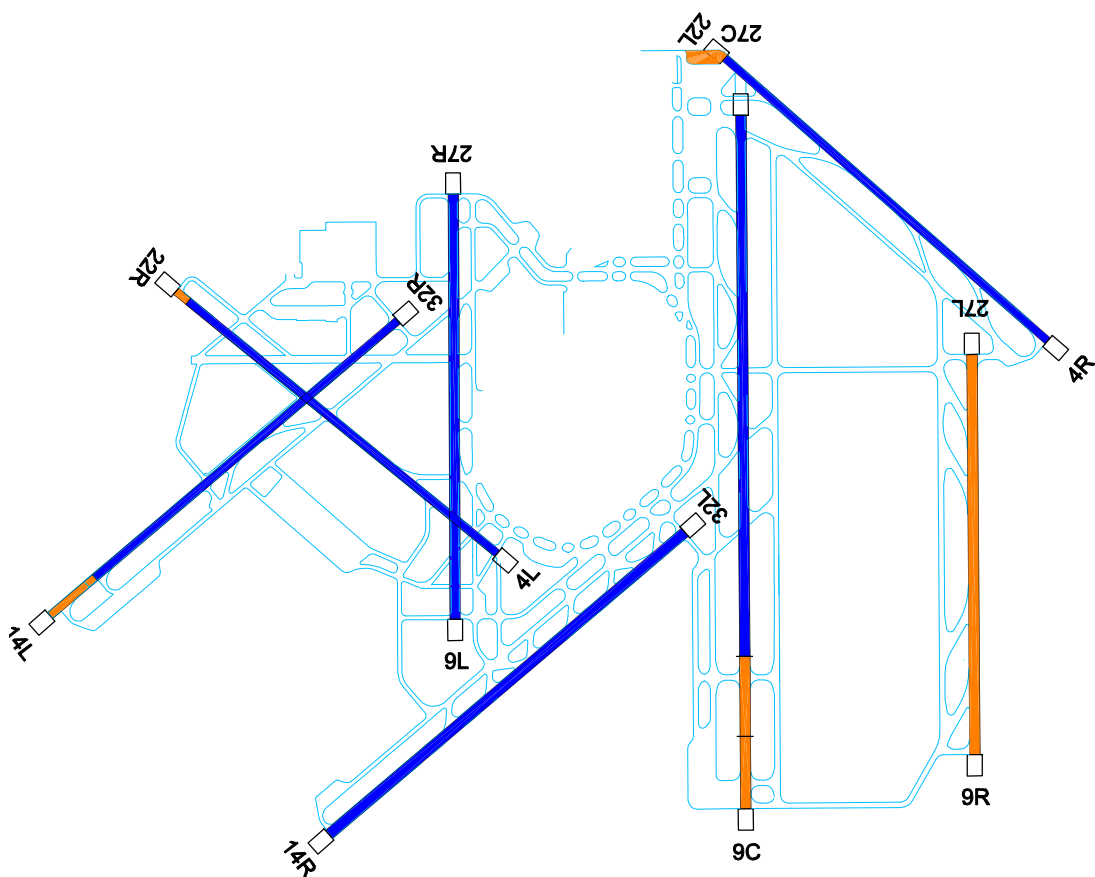
Supplemental Exhibit 2.dwg

Supplemental Exhibit 2

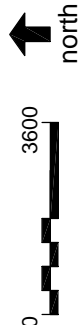
Concept Layout Option 1

Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

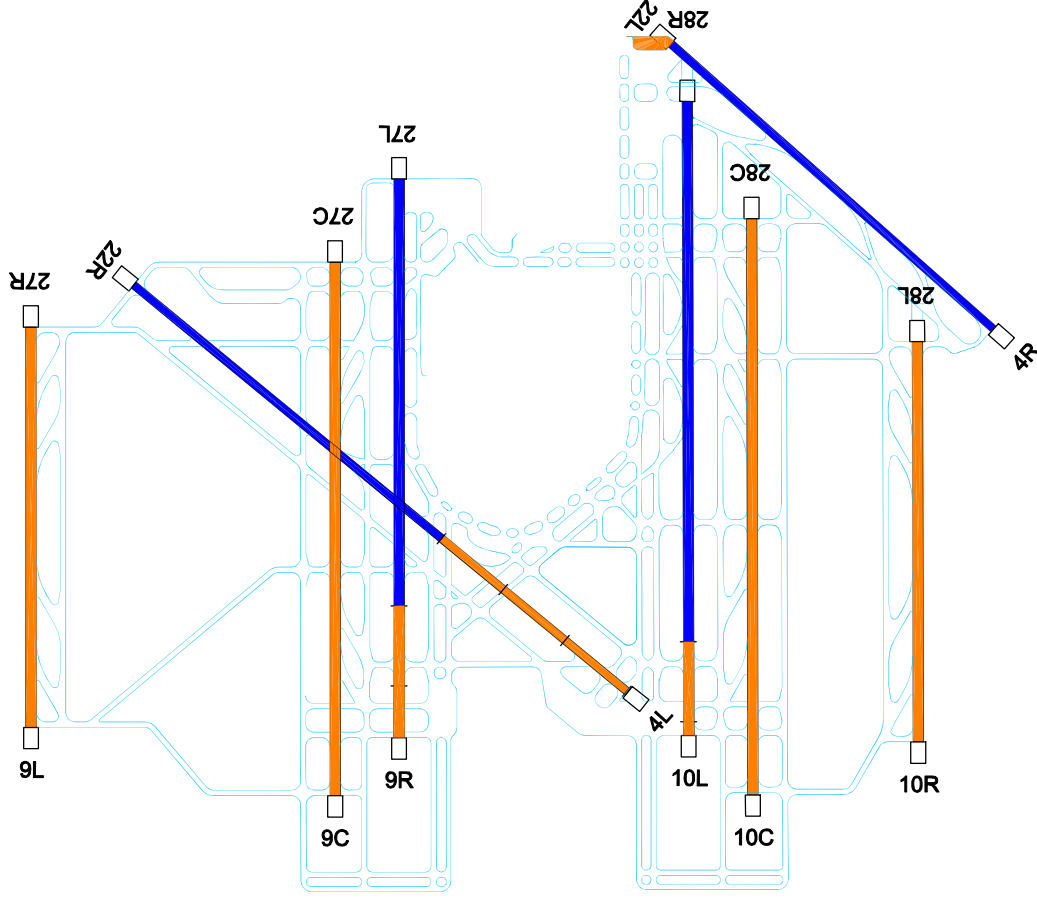


Supplemental Exhibit 2.dwg

Supplemental Exhibit 2

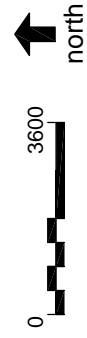
Concept Layout Option 1
Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Supplemental Exhibit 3

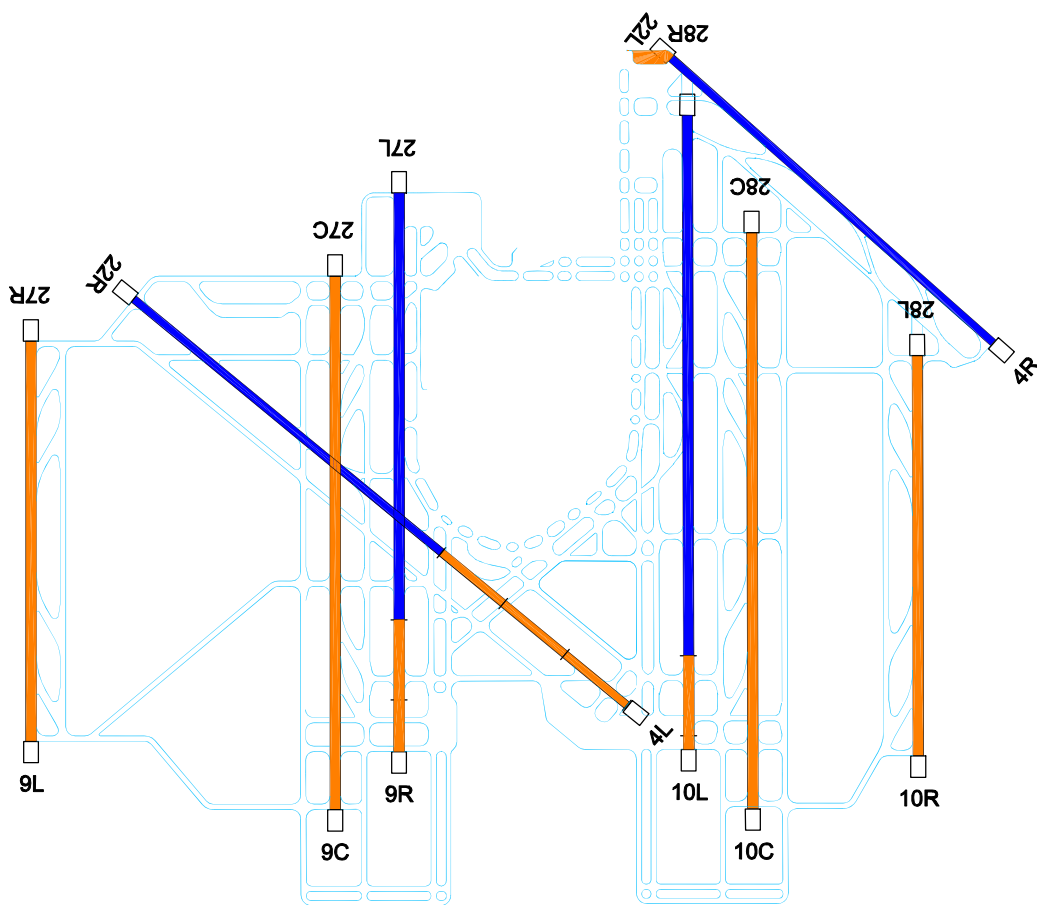


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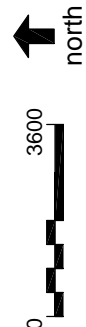
Concept Layout Option 2

Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.



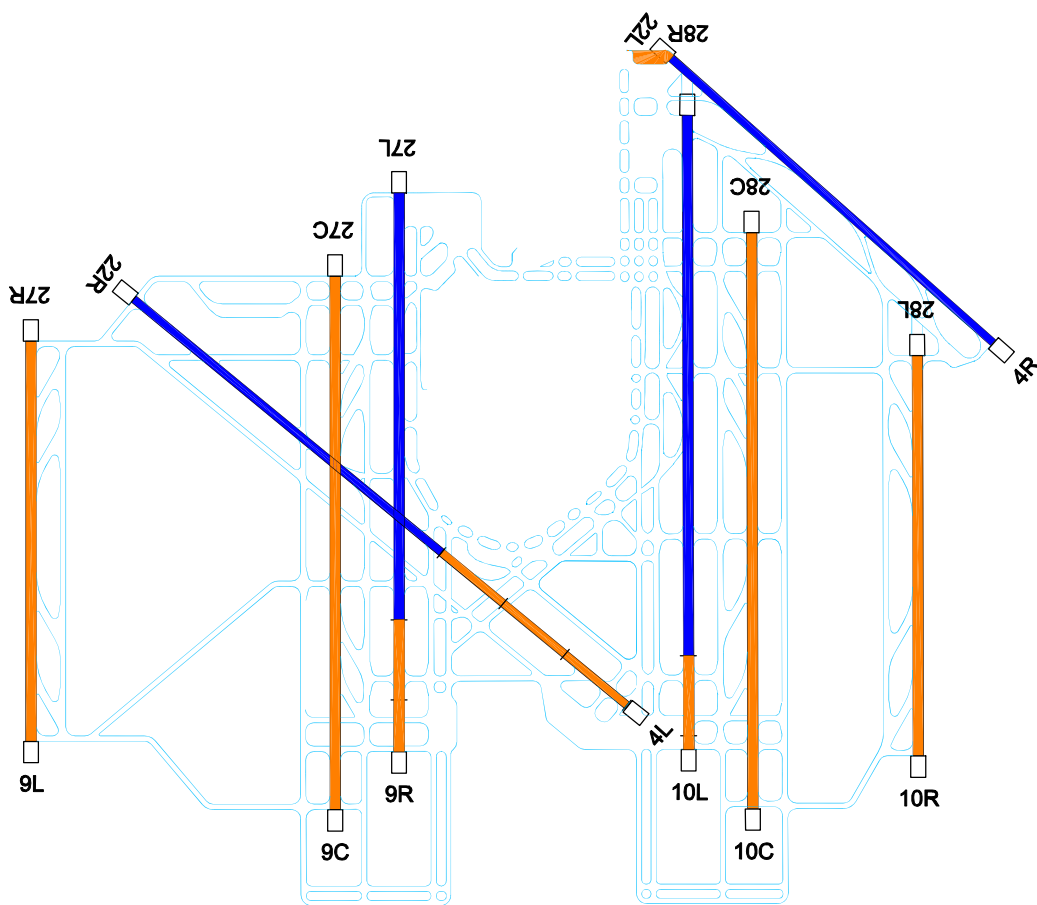
Supplemental Exhibit 3.dwg

Supplemental Exhibit 3

Concept Layout Option 2

Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

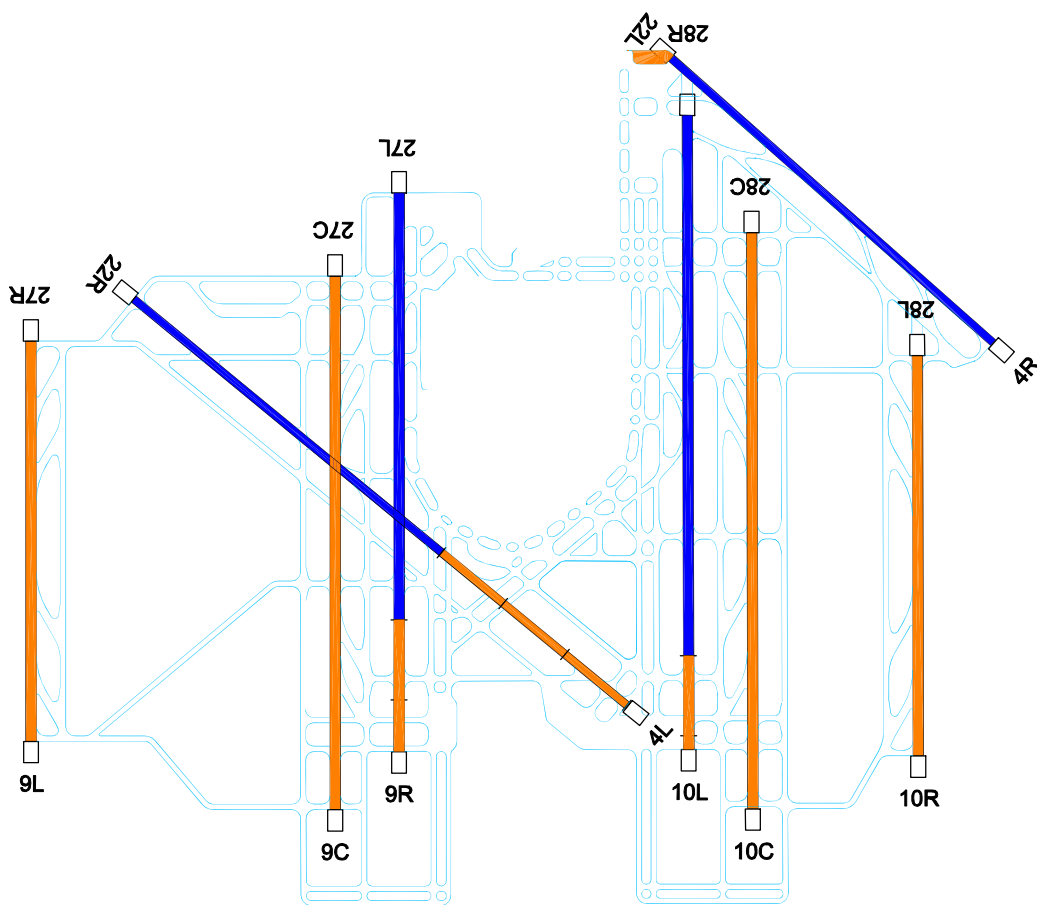


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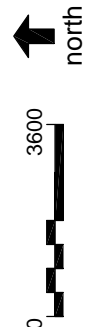
Supplemental Exhibit 3

Concept Layout Option 2 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

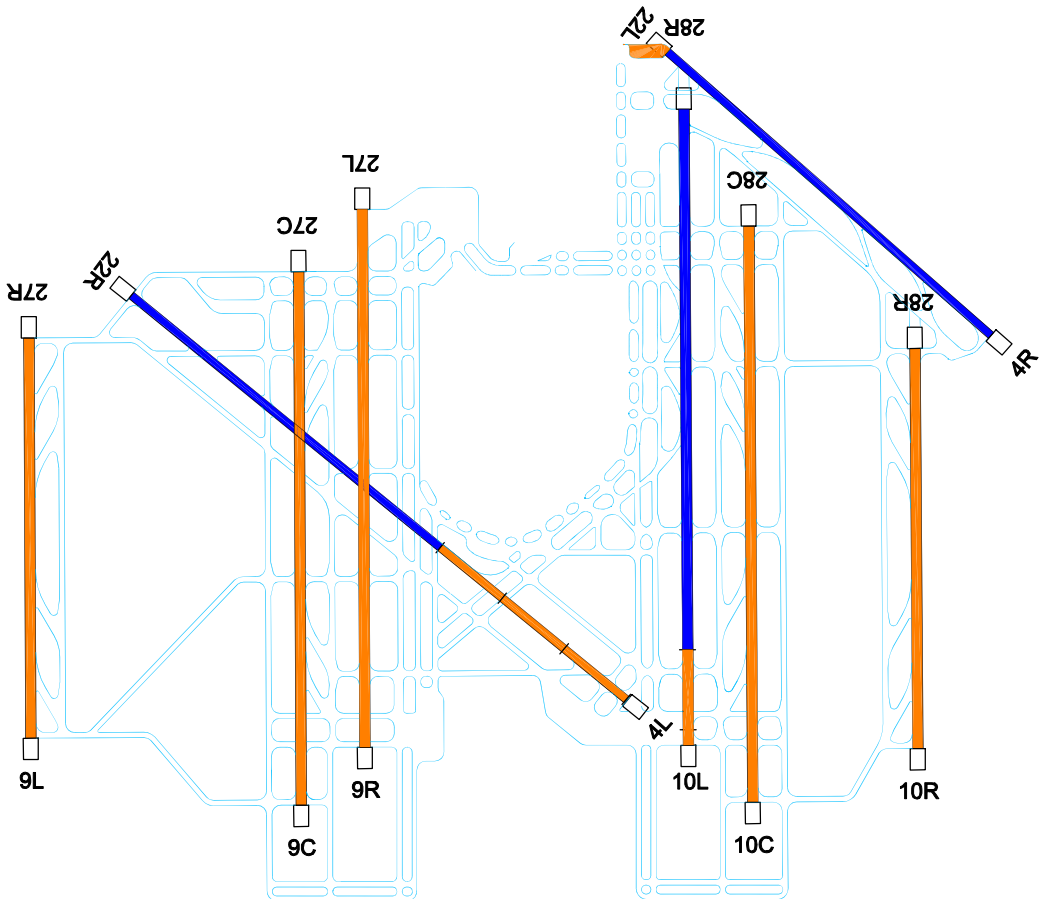


Supplemental Exhibit 3.dwg

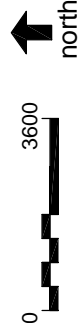
Supplemental Exhibit 3

Concept Layout Option 2 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.



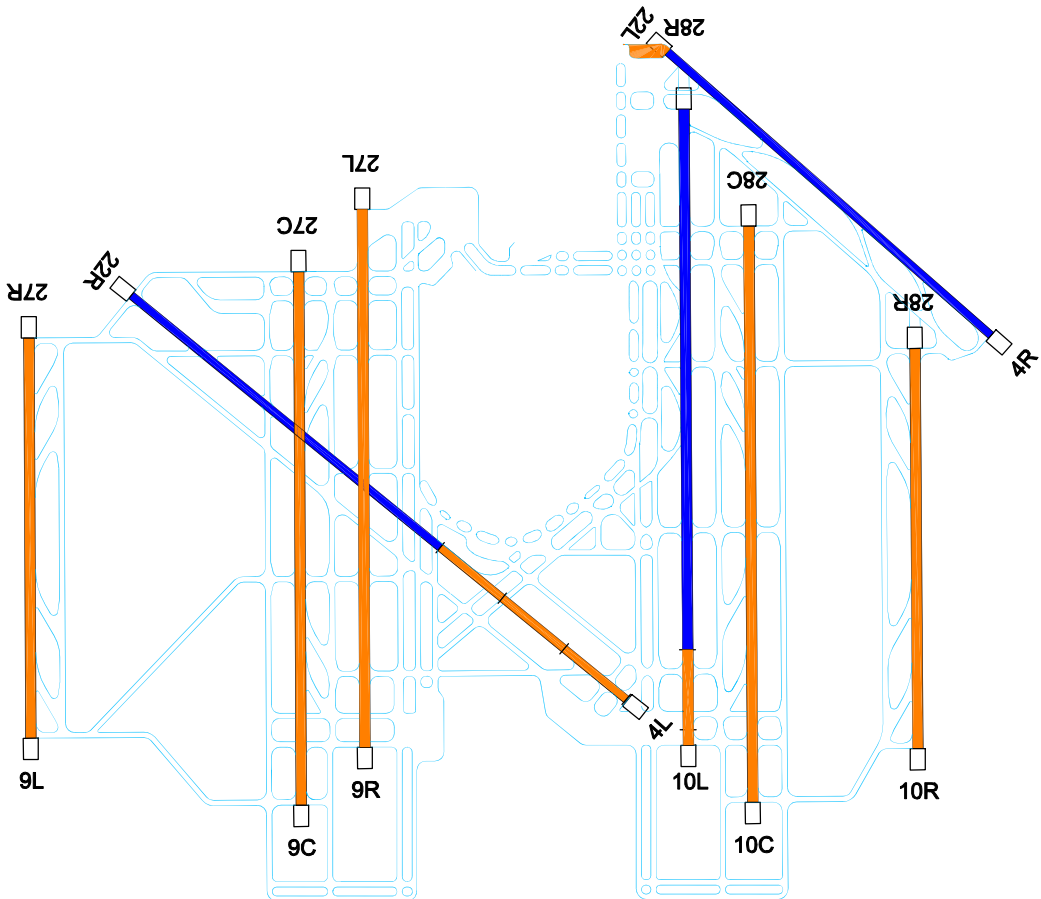
Supplemental Exhibit 4.dwg

Supplemental Exhibit 4

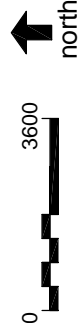
Concept Layout Option 3

Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.



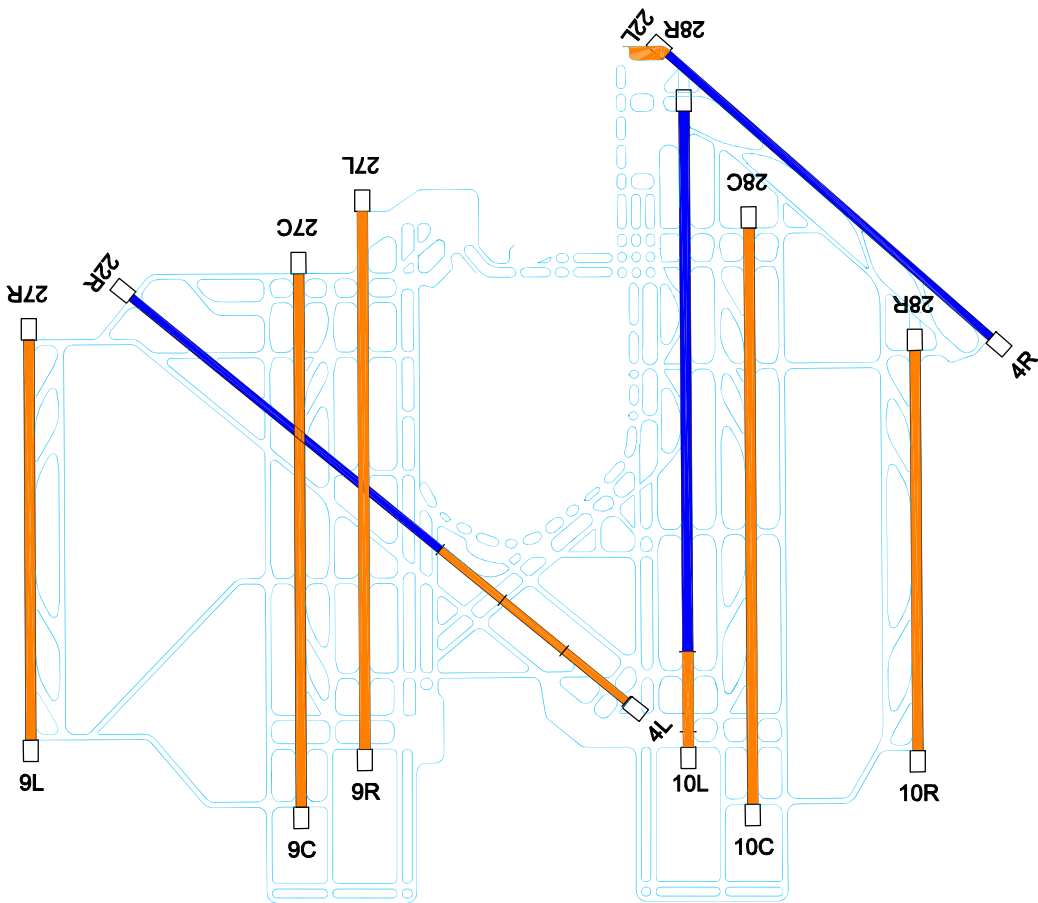
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Supplemental Exhibit 4

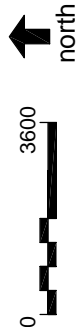
Concept Layout Option 3

Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

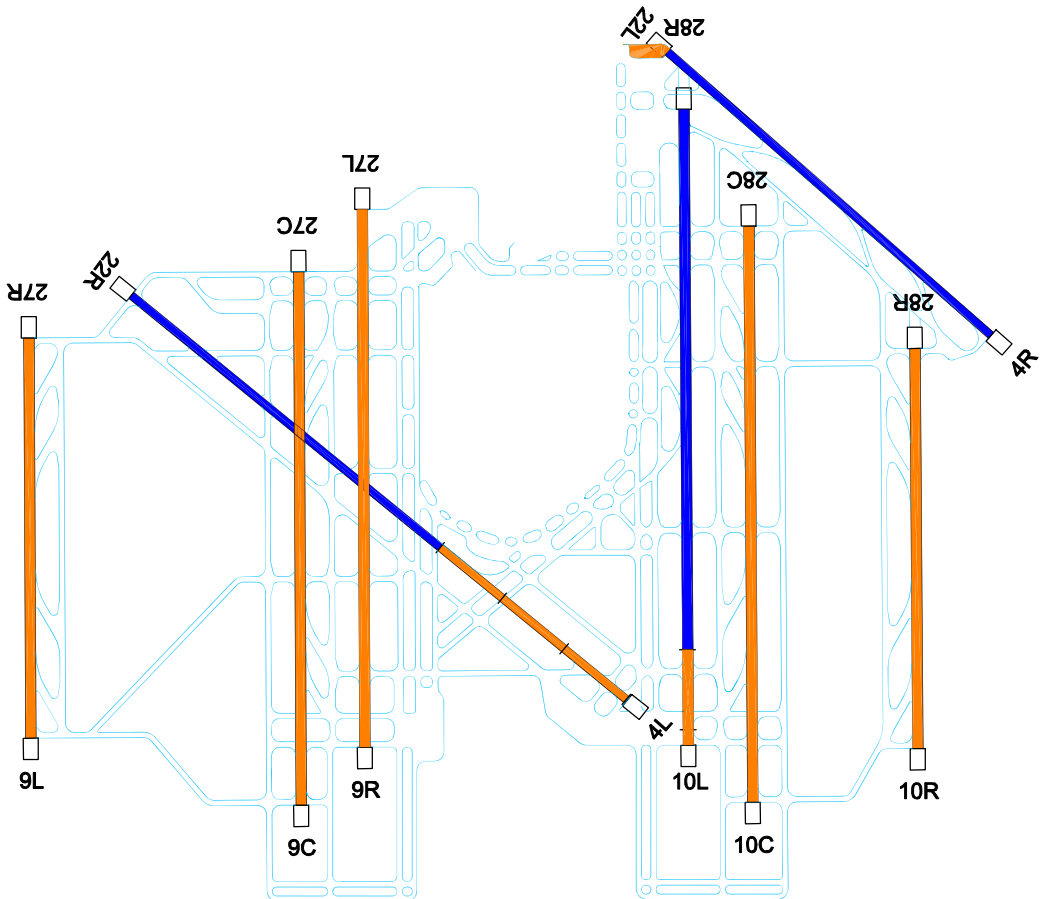


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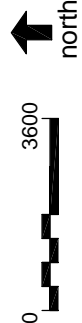
Supplemental Exhibit 4

Concept Layout Option 3 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

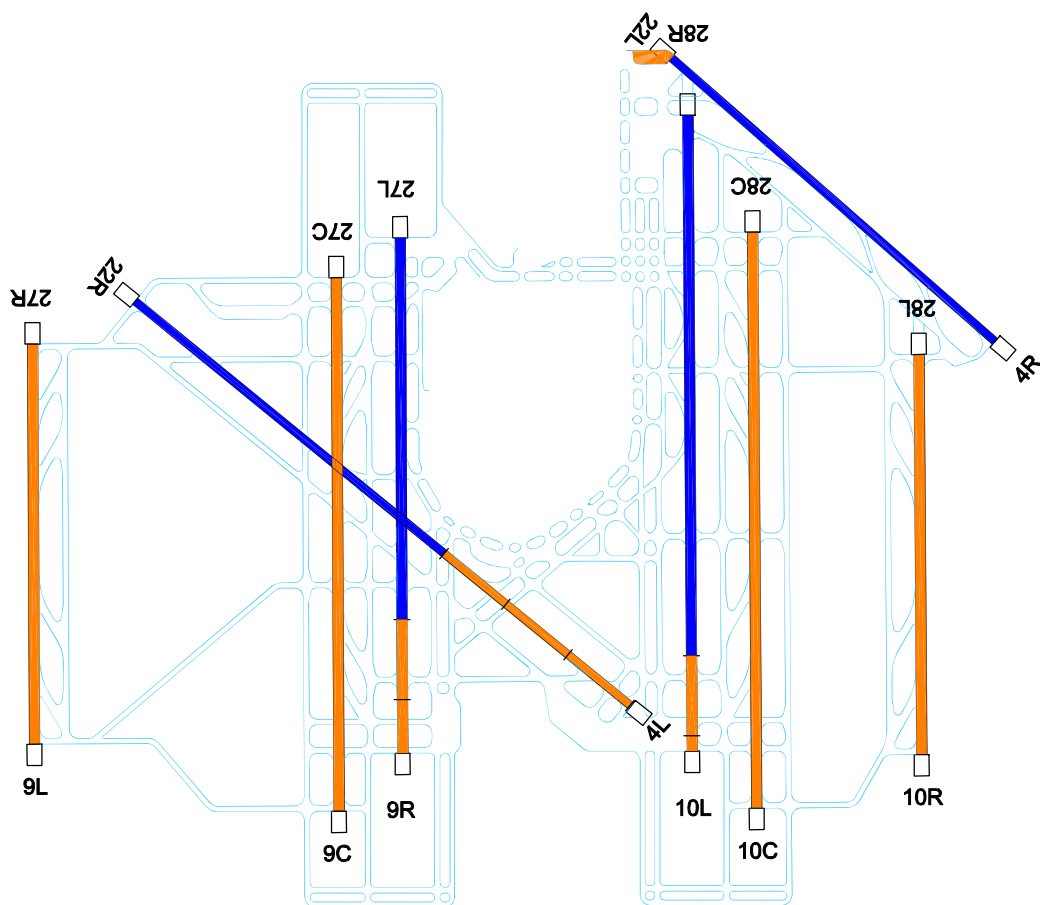


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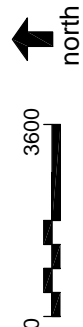
Supplemental Exhibit 4

Concept Layout Option 3 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.



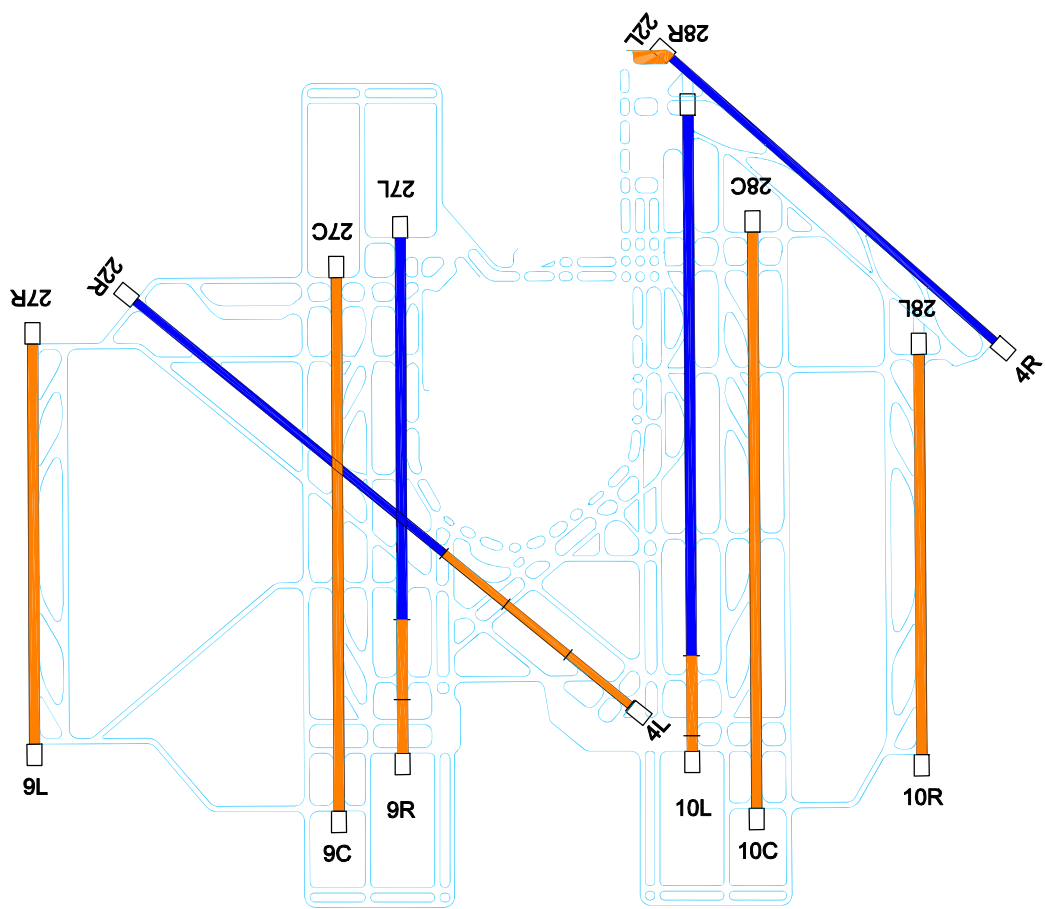
Supplemental Exhibit 5.dwg

Supplemental Exhibit 5

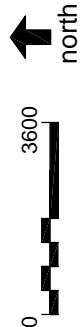
Concept Layout Option 4

Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

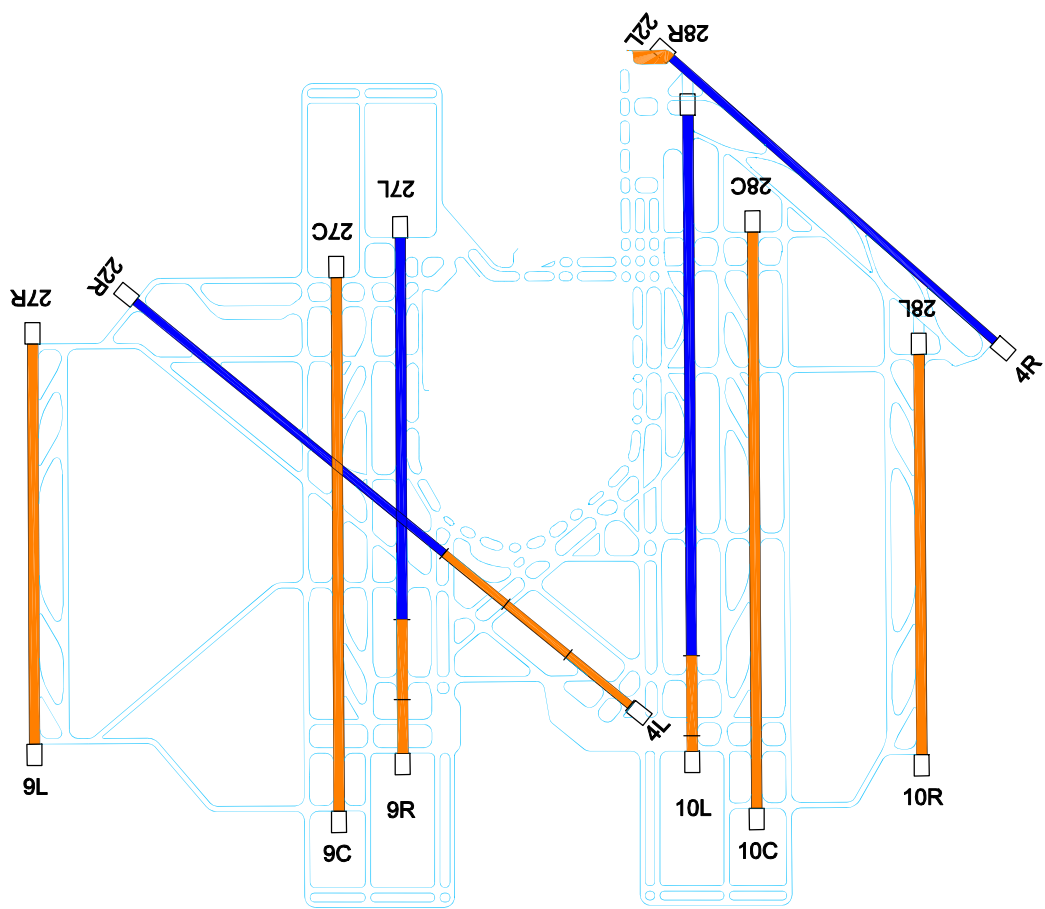


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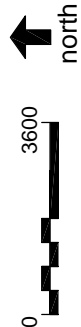
Supplemental Exhibit 5

Concept Layout Option 4 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

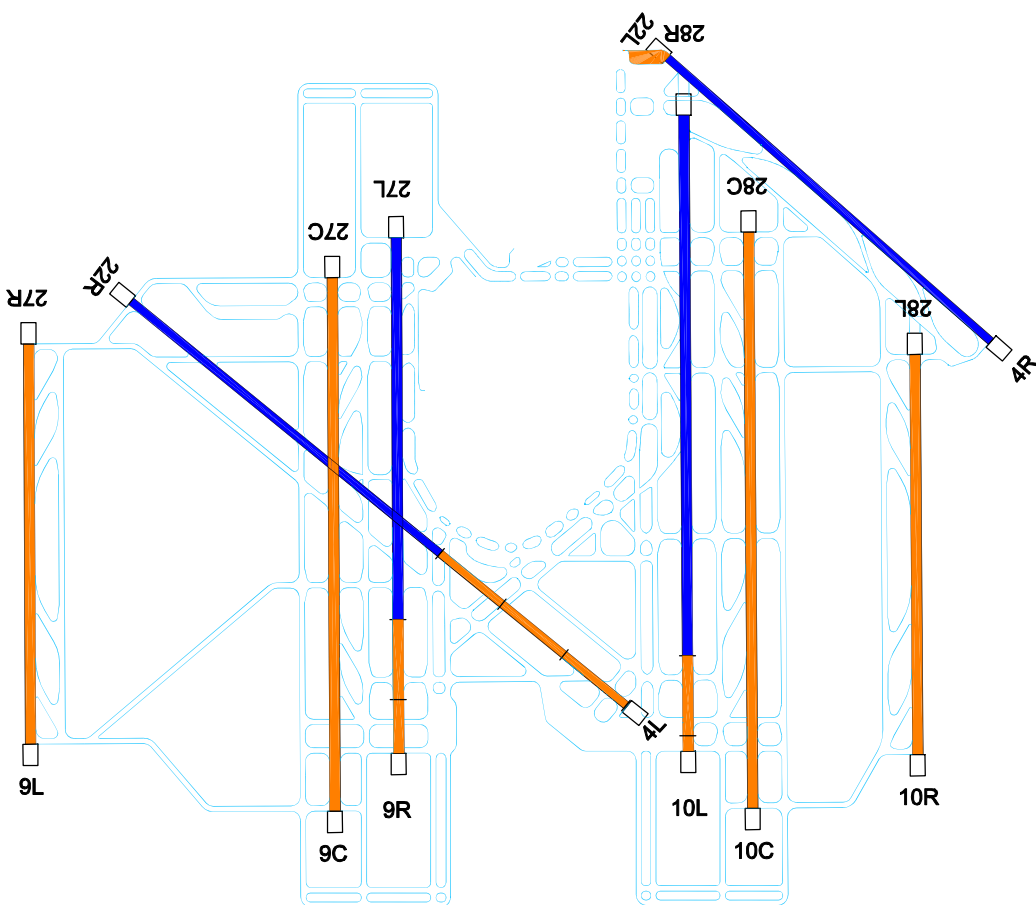


Supplemental Exhibit 5.dwg

Supplemental Exhibit 5

Concept Layout Option 4 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

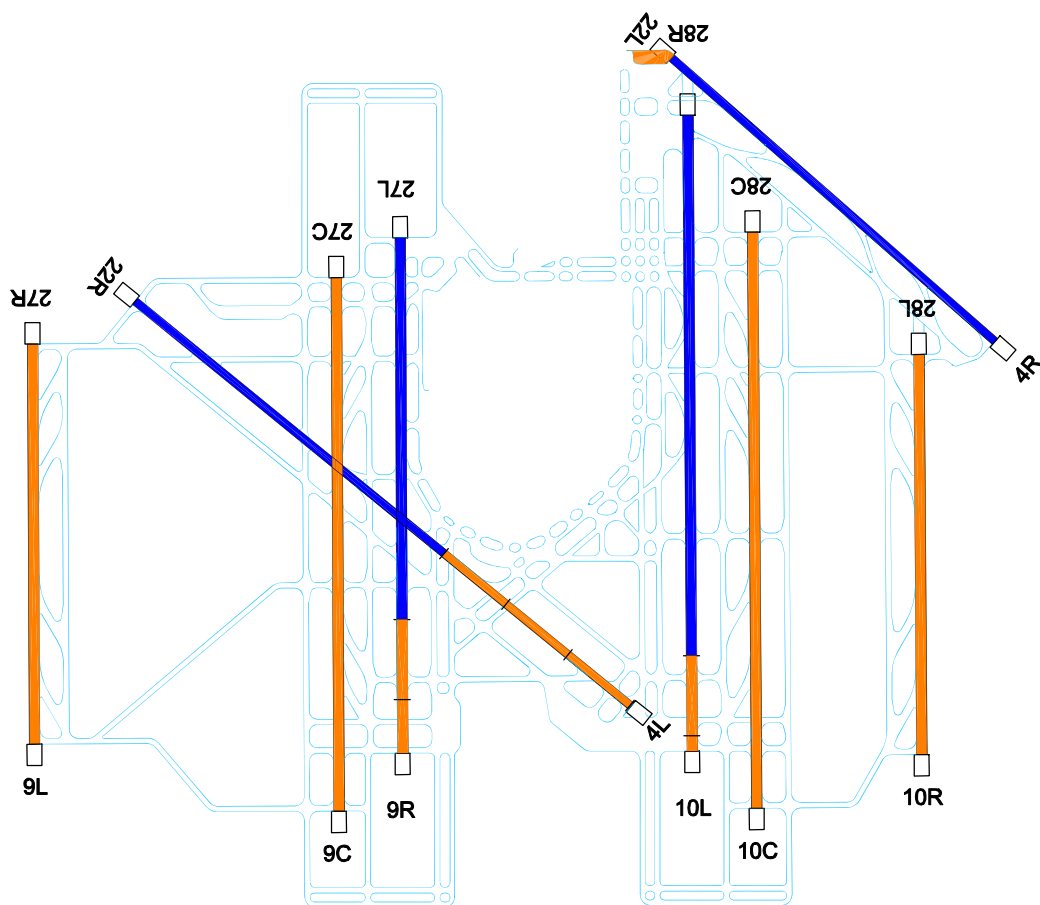


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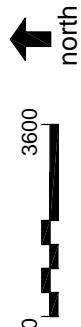
Supplemental Exhibit 5

Concept Layout Option 4 Possible Taxiway Flow Sketch

February 19, 2002



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.



Supplemental Exhibit 5.dwg

Supplemental Exhibit 5

Concept Layout Option 4

Possible Taxiway Flow Sketch

February 19, 2002